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THE

FLORIST

AND

HORTICULTURAL JOURNAL,

A MONTHLY MAGAZINE OF

HORTICULTURE, AGRICULTURE, BOTANY,

AGRICUTURAL CHEMISTRY, ENTOMOLOGY, &c.

EDITED BY

H. C. HANSON.

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THE FLORIST

AND HORTICULTURAL JOURNAL.

COLEUS BLUMEI.

Labiatæ § Ocimoideæ, BENTH. — Didynamia–Gymnospermia.

CHARACT. GENER.—"*Calyx* ovato-campanulatus, fructifer declinatus v. reflexus, rarius suberectus, *fauce* intus nuda v. hispida, 5-dentatus v. bilabiatus, dente supremo ovato, membranaceo, marginibus rarius decurrentibus, inferioribus angustioribus, omnibus acutis v. lateralibus ovato-truncatis, 2 infimis sæpe inter se connatis. *Corolla* tubo exserto declinato, decurvo v. sæpius defracto, *fauce* inflata v. æquali, *limbo* bilabiato, labio superiore abbreviato obtuse 5-4-fido, inferiore integro, elongato, concavo, sæpius cymbiformi genitalia involvente. *Stamina* 4. *Filamenta* edentula basi in tubum stylum vaginantum connexa. *Stylus* apice subulatus, æqualiter bifidus. *Nuculæ* subrotundo-compressæ."

"Herbæ *annuæ v. basi perennantes*, *rarius* frutices verticillastra *sexflora v. sæpius multiflora*, *nunc densissima*, *nunc laxa*, *cymbiformia*, pedunculo communi *utriusque* cymæ ramisve *utrinque binis plus minus elongatis*. Folia floralia *bracteæformia*, *ante anthesin ad apicem recemorum plusminus comosa*, *per anthesin decidua v. rarius subpersistentia reflexa*. — Species pleræque asiaticæ, perpaucæ africanæ," læves

"*Coleus*, LOUREIR. Fl. Cochinch.

"*Ocimi sp.* L. et AUCT.

"*Plectranthi sp.* BR. et AUCT.

"*Solenostemon*, SCHUMACH. Pl. Guin. — BENTH. in DC. Prod. XI. 70.

CHARACT. SPECIF. — "C. foliis ovatis acuminatis grosse obtuse serratis basis acutis et integerrimis utrinque puberulis, verticillastris distinctis, pedicellis racemosis secundis, calycis hirsuti labio inferiore trifido lacinia intermedia longiore semibifida." BENTH.

Coleus Blumei, Benth. Lab. p. 56. et in DC. Prodr. XI. 73.

Plectranthus scutellarioides, BLUME Bijdr. p. 857 non BR. Vulgo: *Djawer kottok burrum*, fide....

Djewer kottok mirha, fide Blume.

Variegated plants are now "the fashion" in Europe. We have them this year by the dozen, *Begonias*, *Hoyas*, *Niphæas*, *the Cissus discolor* and the subject of our present plate the *Coleus Blumei*, known in English gardens as *Plectranthus concolor pictus*.

It is a native of Java and was introduced from that Island to Holland in 1851 by Mr. Willink, an amateur of Amsterdam. Our plate was drawn

from nature in the establishment of M. Van Houtte of Ghent. Dr. Planchon, the editor of the Flore des Serres, remarks in his notice of it that "natural variation and especially the mixture of reddish tints with the verdure of the foliage is a common thing among the genera of the Labiatæ having large and thick leaves, of which different *Lamium*, Mints, *Glechoma*, the *Perilla* of China and other kindred plants are instances." A glance at the plate will satisfy every one that this is a valuable introduction, and one which will prove an ornament to our houses whether in bloom or not.

HISTORY AND CULTIVATION.

I have heard that in some parts of Germany it is not of unfrequent occurrence that when a man is convicted of "treason against his sovereign lord the King," those over loyal subjects of "his majesty," who may chance to bear the same name as the blighted patriot petition for a change of name. This spurning of the unfortunate seems to obtain under the rule of even "Flora." Certain it is, that when a new candidate with substantial claims to beauty or interest, is brought to our notice, it often comes with a new name entirely, and a few of some adjoining genera—too good to be left in doubtful company, are invited as associates with it. The present genus *Coleus* affords us a good illustration of this. Few would expect to find our old friend and acquaintance *Plectranthus fruticosus*—the "nettle geranium," the favored tenant of the cracked teapots and bottomless jugs of the frugal "gudewives" of European laborers, in such a respectable connection, yet so it is; "such is the fate of"—botany.

The only valuable variety in cultivation amongst a score, after forty years classification with them it was removed by Loudon to his new genus *Coleus;* and now that such a respectable representative of the family has been obtained, it may probably bear out the usual rule of family relationship, and emerge with it from the obscurity in which the last few years have placed it. It will afford us, probably some practical observations on the culture of our present subject, in the absence of positive acquaintance with it. The *C. fruticosus* is a native of the Cape of Good Hope, and loves a warm and arid situation; as a window plant it is fitted with great powers of endurance. I have seen it in the most crowded alleys of smoke dried cities, healthy, where nothing else would grow without a Wardian Case. It might do well with us as a border flower. It blooms from June to October, and is readily raised from cuttings, requiring the protection of a greenhouse in winter.

A PHILADELPHIA GARDENER.

CESTRUM AURANTIACUM.

This is one of the most valuable winter flowering plants we have, coming into bloom at a season when flowers are scarce, and lasting in perfection for a considerable time if judiciously managed. But a great many people are under the impression that the Cestrum is a hot house plant, and treat it accordingly; which is an error, it being truly a green house plant, and if treated as such will give far more satisfaction, at least in flower three times as long, and retain its lower leaves much better, which adds greatly to the beauty of the plant. When in flower it should be kept in as dry an atmosphere as possible, as the flowers are very impatient of moisture; when any of the flowers show signs of decay they should be taken off at once, or they will spoil those next to them, and ultimately the whole truss is destroyed, thus shortening the flowering season considerably. This is one of those plants which looks well when elevated on the stage a little above its companions; I do not know of any position which suits it better than when set up on the stage of a green house, with its pendulous trusses of orange coloured flowers looking down on a choice collection of Liliputian Chrysanthemums.

There are many fine collections of green house plants which do not contain this winter flowering beauty; the want of it may be attributed in many cases to the owners believing that such a plant would not flourish in a green house, but I can say that they should lose no time in adding it to their collection, should it be ever so choice, and they will not be disappointed.

It is of very easy culture, growing freely in a composition of turfy loam, well rotted cow manure and sand well mixed together; it strikes root very easily from cuttings of either old or young wood; but this is not often necessary, after a few plants at the first start. In this respect it differs greatly from other plants which have to be raised yearly from cuttings, for the older the plant gets the better specimen it makes, and every shoot will have a truss of flowers; at least that is the way with mine. When growing from a cutting it is best to give plenty of pot room in the early stage of its growth; first shift it into a six inch pot and as soon as the roots touch the side of the pot, shift at once into a twelve inch, which is large enough for the first season and capable of growing a very nice plant if well attended to. In summer plunge in some open airy situation where it will have the full rays of the sun, at the same time taking care that the roots be well supplied with water,—using the syringe freely night and morning during dry weather to keep up a fresh and luxuriant growth. Attention must be paid to topping the young shoots as they grow, to make them branch out and likewise to keep the plant in shape, as there is no use of props, for every branch sup-

ports itself. After the pot is well filled with roots and the flowering shoots appear, the application of liquid manure once or twice a week is of great service. When housed particular care must be taken not to let the roots get too dry, or the flower buds are sure to drop off. The only insect which appears to attack this plant is the greenfly, but this is easily destroyed by fumigating with tobacco. When done flowering set the plant underneath the stage, or in any out of the way place; all that it wants while lying dormant is to be kept from frost and as much water only as will keep the wood from drying up. When all danger of frost is past, prepare for growing again; cutting the branches well in according to their strength; shake the soil from the roots and cut them well in with a sharp knife; pot in fresh soil and plunge out at once in a bed of sand or coal ashes, using the same treatment as before, and by so doing you will make a specimen plant clothed with fresh foliage from the mouth of the pot upwards and crowned with a profusion of flowers.

ETNA.

THE NEW CRYSTAL PALACE AT SYDENHAM.

It is generally acknowledged that England possesses no example of public gardens worthy of her intelligence and limitless resources, and that in this respect she has hitherto been greatly outstripped by her neighbor France. Of recent years the Royal Gardens at Kew have been greatly enlarged and vastly improved, and now certainly occupy the first place in Europe as botanical gardens. But although these are tastefully laid out, their artificial decorations hardly deserve the name when compared with such as are to be seen in France. The reason of this inferiority on the part of England is no doubt to be found in the fact, that while the government of France has been in the habit of undertaking the execution of great public works for the people, the English government leaves all such works to be executed by the people, or by private companies; and until Sir Joseph Paxton's happy idea of combining gardens with the Crystal Palace, no company seems to have ventured upon the formation of highly artistic gardens for the people. Now, however, the Crystal Palace Company, aided by the genius of Sir Joseph Paxton, bids fair to produce such a work as will place England as much in advance in this respect as she has hitherto been behind.

The Crystal Palace itself occupies a commanding position on the top of elevated ground some two-hundred feet above the Brighton Railway, which passes near the southern boundary of the park. The central portion of the

building, rising to the airy height of some two-hundred and twenty feet, will be a striking object for a vast distance around; and from the palace will doubtless be one of the most extensive and certainly the richest views in England; for, besides looking down upon the gardens, rich in all kinds of decorations, the eye will sweep over some forty miles of country.

The gardens occupy the south front of the Palace, sloping down a gentle declivity towards the railway above alluded to, and although a great portion is still in an unfinished state, sufficient progress has been made to enable visitors to form some idea of what the effect will be when the whole of the works connected with those matchless gardens shall have been completed. The narrow slope between the basement of the palace and the level of the first terrace is covered with a close verdant turf, and the terrace itself is in a very forward state. This terrace is supported by a handsome wall, running its whole length, or seventeen-hundred feet, faced with Bath stone, and crowned by a massive and elegant balustrade. Several flights of broad steps lead from this down to the second terrace, which is to be laid out in flower beds in grass, intersected in various directions, by gravel walks. The basins for the numerous fountains with which it is to be ornamented are excavated, and will soon be completed. Two conspicuous looking objects, in connection with the palace, are the towers for affording a fall for working the fountains. These are placed one at each end of the building, and will, we believe, be carried some two-hundred and eighty feet in height.

The main central walk, leading from the principal transept through the two terraces, has been put into shape as far as where the first great fountain in the park is to play; and the balustrading along the top of the lower terrace wall has been continued down the sides of this walk as far as it is raised, and round the fountain, till it terminates in two neat piers a little below the latter. The slopes from the base of the stone work down to the level of the surrounding ground have been turfed, which has the effect of setting off the white stone with which the terrace walls are formed to great advantage. All along the terrace walls the little piers, which are twenty-four feet apart, are to be surrounded by vases filled with flowering plants; and we understand that beds of sweet smelling flowers are to be scattered plentifully along the grassy bank below the first terrace, so as to yield an agreeable perfume to visitors looking over the wall on the magnificent gardens below, with their delightful groups of ornamental shrubs, flowers and fountains. A large tract of ground lying between a natural knoll, or little hill, on the west side of the first great fountain in the park, and the front of the terrace gardens, has been laid down in turf, or sown with grass seeds, and completed; and the walks in this part of the grounds have been made and rough gravelled.

Various well arranged clumps have also been formed and planted; and altogether this side of the park, with its finely undulating surface and broad glades of grass, begins to assume an interesting and finished appearance. We observed that, in the planting, advantage had been taken to place the clumps around trees which had previously been growing upon the ground, thus giving the whole a more established appearance than it could otherwise have had. On the top of the eminence, or little knoll, just mentioned, we understand that it is purposed to erect some kind of ornamental conservatory; but its shape or construction, we believe, is not yet determined upon. A number of various shaped flower beds have also been formed along the sides of the walks in the finished part of the ground; and we are informed that the whole of the margins of the walks are to be ornamented in this manner, which, when they shall have been completed, and covered with bright flowering plants, cannot fail to produce a charming effect. Before leaving this part of the grounds, we may mention that the palace station, into which the railway from London Bridge is to run, is being formed close on the western boundary of the park, at a little distance from the palace, between which and the station there is to be a glass covered way, so that the contents of the building may be inspected without inconvenience, during all kinds of weather. The railway itself is in a very forward state.

If we pass down the line of the great central walk which is to lead to the bottom of the park, decorated, as it is intended to be, on the other side, with flowers and shrubs, and alive with fountains and waterfalls, we find great operations going on; but little here is at present finished. True, broad gravel walks and green sloping banks are beginning to make their appearance, and the basins for the great lakes and fountains, on either side of the main walk, are in a comparatively advanced state; but nevertheless, upon the whole, it is as yet difficult to form a correct idea of the grandeur and magnificence which it is intended that this portion of the grounds, when finished, shall display. Of the kinds of fountains with which the lake are to be furnished, we may mention that the centre column of water will rise two-hundred and thirty feet in height; around that will be four fountains, each one-hundred and twenty feet in height, and these, again, will be surrounded by sixteen others, each seventy-two feet in height. Nor is this all; there are other groups as grand, besides multitudes of smaller jets of a similar character, which in themselves will doubtless be worthy of Sir Joseph Paxton's experience in such matters.

On the shores and islands of the lake, at the end of the main central walk, are to be dispersed "models of the extinct and singular monsters of the wealden and neighbouring periods. Huge Chelonians are to bask upon

the banks; the Plesiosaur, with its reptile form and bird-like neck, is to repose in the mud; the Megalosaur, the most gigantic of lizards, is to rear its portentous form among the rushes; and the enormous Iguanodon, half elephant, half crocodile, measuring one-hundred feet from his snout to his tail, is to exhibit himself as the true prototype of the dragons of antiquity. We have seen these models, and we are glad to bear witness to the admirable skill with which Mr. Hawkins is investigating Portland cement with the similitude of these hideous giants of a former world."

It will be gathered from the above hasty glance at this great garden, that much—very much—has yet to be done before all that is contemplated shall have been completed; and notwithstanding the immense number of labourers employed, we doubt whether the Company will be able to fulfil its promise to have every thing finished by May next. Surface work is soon forwarded; but here the great bulk of the labour lies in moving immense quantities of soil, and carrying it from one part of the grounds to another, in order to raise mounds and carry out the levels. This, therefore, is a work of time; and unless the winter should be favourable, it cannot be conducted with advantage during that season of the year. We will, however, from time to time, furnish our readers with such accounts of its progress as we shall hereafter think may prove interesting to them.

ON THE BOUVARDIA LEIANTHA.

Of the vast number of new plants annually brought into notice, how few retain a lasting hold on popular affection; yet, once in a while that event does happen, and this plant is destined to be one of them. When the introducer offered me a plant, not having seen the flower, and warned by previous experience in the matter of *B. flava* and *B. venusta*, I shook my head dubiously, fearful that my employers money might again be thrown away; now, after two years experience with it, I feel that I should be proud of the honor of introducing such a plant.

If I were asked what to recommend as a first rate specimen plant for greenhouse culture, I would say at once, *Bouvardia leiantha*. Late in the fall or early in the spring, cuttings strike freely, in a few weeks, in light sandy soil in a slight bottom heat; as soon as well rooted, pot off into two or three inch pots. When established in these, take the one desired to form into a specimen plant, and pot it at once into a six or eight inch pot. These should be well drained, a thin layer of moss placed over the drainage to keep the soil from choking it, and the soil itself composed of *green*, or but slightly decayed turf from a pasture, mixed with a little sand, and coarse half dried

decayed stable manure. Such a soil will allow the plant to receive an abundance of moisture without injury. As the plant grows pinch back the shoots an eye, and tie them out to the desired form and shape; continue this pinching and tieing for twelve months, before it is suffered to flower, when let it go a head, and it will then produce a mass of scarlet flowers that for graceful elegance cannot be surpassed.

Am I asked for a good winter flowering plant of the easiest possible culture, again I have to recommend *Bouvardia leiantha.* Take cuttings early in the spring, strike them in the manner aforementioned and as soon as the plants are well rooted, pot them into four inch pots, in any coarse, rich, loam. Encourage them to grow as much as possible; and, during the summer keep them out of doors exposed to the sun, but the pots in which they are growing preserved from its influence. At the approach of fall, shift them into pots a size larger, water them well and remove to the greenhouse, they will continue to bloom from that time forward throughout the winter; and the more their handsome blossoms are cut for bouquets, the more freely will it strive to produce others. If a little heat can be commanded, it will give greater satisfaction.

And now were I asked for a good scarlet border flower, of a good habit, free blooming, and adapted to full exposure, I should still say *Bouvardia leiantha.* Cuttings struck in the fall, grown in three inch pots, and kept through the winter in a light place secure from frost, may be planted out early in spring when danger of frost is over. They will prefer a warm situation provided the soil is not too dry or too wet; and for a short time after they commence growing will require to have their shoots peg'd down over the beds, and an occasional pinching off. THOMAS MEEHAN.

A FEW WORDS ON THE VITALITY OF SEEDS.

TRANSLATED FROM THE REVUE HORTICOLE.

We lately entertained our readers with facts tending to establish that seeds, when they are placed in certain conditions, are capable of preserving their vitality longer than we would be inclined to believe, if we judged only by the duration of those which are kept in our granaries and laboratories for daily use. Two of our subscribers, whose attention to this subject was excited by our articles, have communicated to us new facts drawn from their own experience, and which tend still to confirm what we have said of the influence of the medium in which they placed on the preservation of seeds which are subjected to it.

One of them, M. Sarrail, at l'Ecluse de la Chaux (department of the Aude,) had in 1817 made a garden which bordered on one side the river Fresquel. The ground was sloping; he levelled it, arranging it in horizontal beds and staged like a terrace. The lowest bed, which ran parallel to the river and nearly at its level, was frequently submerged by its freshets. Not knowing how to occupy the space he sowed, for want of better, some Persicaria (*Polygonum Persicaria*), and thought no more about it.

The following year, in 1818, he thought he could make better use of this portion of his garden by planting in it Provence reeds (Arundo donax) which he obtained from Perpignan. This strong growing grass made rapid development, and in less than three years formed a continual barrier, in the thickness of which the river during its overflows deposited a large quantity of mud, which gradually raised the level of the bed. The reeds, each year deeper buried by these deposits, followed the ascent of the soil, by prolonging little by little their rhizomes by the upper part. In the month of February last, M. Sarrail had this plantation destroyed; the rhizomes of the Arundo, which then formed three superposed beds, the lowest being nearly reduced to mould, were dug out of the soil, and the underlying earth transfered for compost to the bed immediately above. What was his astonishment, when, two or three months afterwards, he saw this bed as well as the excavation whence the earth had been taken, cover itself with an abundant crop of Persicarias! He then recollected the seeds which he had sown 35 years before, and as at the same time he read from our journal, the analogous observation of M. Trochu, he could not doubt but that these plants came from the seeds sown by him at that time and which were preserved unhurt under the thick bed of mud which the reeds had stopped on the way, and which had solidified in the net work of their root stocks.

Here, as well as in the instance reported by M. Trochu, it is to their burial in the soil, at such a depth that the atmospheric influence could not reach them, that the seeds owed the preservation of their germinative power during so long a period of years. The result would have been very different if, in place of being covered, they had been kept in an apartment as seeds which we destine for sowing generally are, because then the alternations of cold and heat of dryness and humidity, and especially the prolonged contact with the air, would have developed in them a fermentation incompatible with their vitality. This is a fact of daily experience and one which gardeners have but too much occasion to observe; every one knows that seeds have less chance to grow the older they are; there is, however, a marked difference in this respect in different species.

The other observation of which we have to speak, and which is due to M. Micheli, is a new proof of the rapidity with which seeds, not sheltered from atmospheric influences, are deprived of life. Having read the notice of M. Trochu, he conceived the idea of experimenting on old seeds whose age he knew exactly, and of a great number of species. He made a sowing in the open ground, during last spring; but a very few plants came up; these were *Cynoglossum linifolium*, *Chrysanthemum carinatum*, *Coreopsis deversifolia*, *Escholtzia californica*, of which the seeds were gathered in 1846; *Convolvulus tricolor*, *Hibiscus trionum and Ipomœa purpurea*, which were two years older; in the case of a single species, the *Malope grandiflora*, the date went back to 1840, that is, they were twelve years old.

These results conform entirely to those which have been obtained in England; a liberal society which is instituted in that country for the progress of science, and which is called the British Association for the advancement of science, has appointed a commission to study specially this interesting question of the longevity of seeds. In one of its latest sittings, it received from Dr. Lankester, the chairman of this committee, the report of the twelfth experiment on this subject. This experiment was tried with seeds gathered in 1844, a part of which were sown in 1850 and 1851. The result has been the rapid diminution of the number of germinating seeds, as they became older, a result which must be expected after all that we know on the subject; the question, therefore can be considered as settled, at least in a general manner.

At this same meeting of the scientific society just mentioned, there was again mention made of those famous seeds of Raspberries found in a celtic sarcophagus, which have been sown with success, and of which we informed our readers. In England, as in France, this extraordinary fact has found many disbelievers; but new investigations have been made, with much care, during last year, and they have tended to confirm it. Among other witnesses still living, we may mention Dr. Royle, the celebrated botanist, who had for a long time the direction of the garden of acclimation at Calcutta; he has asserted that he was present when the brown matter containing the seeds, and which had been collected in the remains of the skeleton, was presented to Dr. Lindley, and has further declared that he had no doubt of the truth of what has been said of the germination of seeds preserved under the ground for ages.

The deep burial of seeds therefore, we repeat is the true and probably the only means of preserving their vitality for an indefinite length of time. We should have been happy, at this time, if our ancestors of some centuries ago had thought of keeping in reserve for us, in this manner, some seeds on

which we could experiment. They did not do it, nor could they, because the minds of that day were not turned towards that kind of observations. But why do not we, whom scientific questions interest to so high a degree, prepare this experiment for our descendants? This will be an act of foresight for which they will thank us, and who knows? perhaps which will be a means of transmitting our names to the most distant generations. But the age is so selfish, so strongly preoccupied with the enjoyment of the present, that we scarcely hope to see it seize upon our idea to put it in execution.

NAUDIN.

On Pruning and Winter Dressing of Pear Trees.

I again intrude upon your pages to call the attention of amateur fruit-growers to the absolute necessity of winter pruning of fruit trees. I do not mean by this to direct them, executioner-like, with saw and axe to amputate and decapitate right and left, without heed or hindrance; no, sir, I do not call that pruning—I call it murder in the first degree.

If you wish to renovate old trees and graft or bud them again with finer or newer fruits, begin on the trunk and scrape off the old rough bark, with a scraper, draw knife, or even a piece of an old scythe to which two wooden handles have been adapted—that can readily be done on the spot. Having cleaned the trunk, thin out nearly all the thin spray or small wood and clean the main branches with a large knife. After this dressing the tree will look very much denuded indeed, but the result will compensate for the labor, and in a more rapid degree, if the soil has been stirred up by the plough, spade, or fork, and the whole thoroughly incorporated with three or four inches of good barn-yard manure, or two bushels of leached ashes to each tree. The following season the bark of the tree will be smooth and green, the young shoots from one to four feet long, and the whole tree entirely covered with a luxuriant verdure. During the month of July, the weakest of these shoots must be thinned out, the strongest left for fruiting, budding or grafting upon, to produce finer fruits. To some minds this may appear a tedious process, but to those who have tried it, and now reap the fruits thereof, it is a joyous one. Let the sceptic try one tree only, and you may predict the result.

Having in a former number directed your attention to the summer pruning of dwarf pear trees, you will permit me to suggest the equal propriety to their winter management. It is my usual practice to give my dwarf pear trees a good dressing with short manure every winter, and fork it in amongst their roots early in spring; and where I do not wish to crop amongst the

trees, I allow it to remain on the surface, not afraid of all the ammonia escaping to the clouds. In pruning my pear trees, on which I pride myself, after having heard the opinion of one of the best pomologists as to their being the finest looking pear trees he had ever seen for so short a period, (six years,) many being ten feet high and eight feet diameter in the head, and have produced from half to one-and-a-half bushels per tree. During the winter months I shorten every shoot, leaving only from three to six inches of the previous summer's growth; on some of the young shoots left previous to the June dressing, I find fruit buds; had these shoots not been nipped in June they would not have had fruit buds upon them. Wherever the old spurs or wood has a tendency to crowd the centre of the tree, I cut it out—always leaving it thin and free for circulation of air and the maturing of fruit. The only implement used is a good pruning knife, the tree is left with the head either conical or rounded, to suit the fancy of the operator, or the disposition of the tree; not one branch, bud or twig touches another, all is free and open. This practice applies only to pears on the quince stock. The roots of the quince are always near the surface, and require great nourishment where they are planted so close as ten or twelve feet. Trees on the pear stock have a great tendency to wood in their first ten years' growth, which has caused the prevalence of the idea that pear trees have to be a certain age before they produce fruit. This arises from the disposition of the roots in nearly all soils to go downwards, and produce what is technically called tap roots. To cause such trees to become fruitful and regular bearers, dig a hole eighteen inches or two feet deep, and about as far from the bole or stem of the tree; have a good sharp steel spade, and cut through all those perpendicular roots, which has an electrical effect on the fruitfulness of the tree. When the roots are thus cut give the head a thinning out, and shorten all the long straggling shoots, give the ground a good top dressing of compost, old manure, coal ashes, leached ashes, or any enriching material, to draw the roots to the surface and induce them to fibre. The downward tendency of pear roots into the cold soil predisposes the trees to summer blight and exuberance of unfruitful wood. It will not be many years before the Pear, when grown on its own stock, will have a triennial root-pruning, or in other words, digging a trench round the roots of the tree and filling it up with good rich compost; this trench extending its circumference every three years. Purchasers will also be convinced that it will be to their interest to select from nurseries trees that have been removed two years previous, even at a much enhanced price. Under the present system of nursery culture, we purchase trees with long, raw sapling shoots and short, carroty roots, requiring two years' careful culture before they recover the shock to their system by strangulation; and even if the careful vender search to the extremity

of the roots, they are only a bundle of prongs, without a solitary fibre; hence the great success of transplanting pears on the quince stock. I know a friend near Bristol, Pa., who transplanted over three hundred pear trees all on the quince, obtained from a Philadelphia nursery, and lost only two or three trees, not more, and many of them produced fruit that was exhibited in Philadelphia, fully ripe and of large size, within six months of the day of planting. I have obtained similar results, but not on so large a scale; and any of your readers who will follow the same course will arrive at and may easily surpass all that is herein expressed. G. T.

Chester, Pa., Dec. 1853.

MANAGEMENT OF CIDER APPLE TREES.

Utility of taking off the old bark of trees, and the best way of performing that operation.—This extremely useful practice appears to be of Norman origin. Its introduction is due to the Abbe Adrien Le Gendre, cure of Henouville, near Rouen, about the time of Louis XIII., therefore this practice must have been in use nearly two centuries. Nothing is more injurious to the trees than the old dead and cracked bark on the stem and thick branches, as it affords a soil and footing for mosses and lichens. Protected by these cryptogamic plants, and hidden in the crevices of the bark, great quantities of eggs are hatched; and here also numerous larvæ wait for the return of vegetation, in order that they may mount into the top of the tree, and devour the buds, leaves, and flowers as they come out. The removal of the old bark is doubly advantageous, inasmuch as the living bark is brought in contact with the air, and myriads of insects, prejudicial to trees, are destroyed. But, in performing this operation, we must be careful not to take off the live bark, and lay bare the alburnum, for in that case almost as much harm as good would be done. The best time for the operation is after heavy rain, as the dead bark is detached much more easily when it is moist. When there are no scrapers for the purpose, old spades, Dutch hoes, &c., may be used, but the edge of the instrument should not be too sharp, lest it should go to the quick. As soon as the trees have been scraped, all the bark, moss, &c., should be collected and burnt; for unless that is immediately done, the larvæ will not be long in taking shelter in the ground, or in the grass round the bottom of the tree. After this, and especially if the trees have been scraped too near the quick, it is well to apply, with a paint brush, or with a soft broom, a sort of wash made of fresh cow-dung, to which is added a little clay; this is diluted with urine, in which some lumps

of quick-lime have been slacked. The soft mud at the bottom of puddles may be used as a substitute for this preparation.

Gathering and Preserving the Fruit.—The fruit should if possible be gathered in fine weather, in order that it may be dry when brought in. The time of gathering varies from the end of August to the end of November, according to the varieties and the locality. Before gathering, the fruit should have arrived at a proper degree of maturity. This may be known, especially in early varieties, by the smell, by the coloring of the seeds, and also when the weather is calm by finding fallen fruit which is neither wormy nor in any way inperfect. The fruit is detached by shaking the branches, either by getting up in the tree or by means of a hook. Poles should be employed as little as possible, and with great care, because they break and destroy the fruit spurs. It is advantageous to keep each sort of Apple separate, in order to be able to mix them, so as to produce the best quality of cider. It is of the greatest importance to shelter the Apples; for if left out of doors, the rain or melted snow carries away part of their juices, and, in consequence, cider of only middling quality can be obtained. We know that in years of abundance there are, in many instances, insufficiency of buildings to shelter the whole of the fruit; but it is neither difficult nor expensive to erect temporary sheds by means of straw mats, from two to two and a half inches thick, and made of long straw squeezed between two pieces of wood, which are fastened with osier or wire. Two of these mats leaning against each other like a roof form a sufficient protection against rain. Apples should be protected from frost, for it deteriorates them as much as rain does. This is so much the easier, as at the time of the hard frosts nearly all the Apples are crushed, except those that are not ripe, and we can therefore put them in the regular buildings. If these buildings are accessible to frost, the best way to preserve the fruit is to cover it with straw and damp cloths, as previously recommended. The manufacture of cider requires more attention and cleanliness than it generally receives. Not only should all the instruments and vessels used in crushing be clean and free from smell, but the straw also on which the pomace is laid should be fresh, clean, and, above, all, free from mildew. It is said that the English in Herefordshire, Somersetshire, and other counties, give and preserve an agreeable taste to the cider by mixing large Turnips with it. We may with propriety mix bitter with sweet Apples; and provided the former are not present in too great proportion the cider is sometimes improved by the mixture; but when we wish to obtain cider that will keep long, we should reject the sour Apples, as the liquor they produce is very pale, and soon turns acid. *Gard. Chron.*

CALENDAR OF OPERATIONS—JANUARY.

FRUIT.

In our progress through life, it is often instructive to pause "and cast a few short, rapid glances to the past," so that we may benefit by former experience in shaping our future course. This is imperatively necessary in connection with the study of our present subject. Vegetable Physiology is a subject of vast extent; and so far as it is rendered applicable to practical purposes, is only in its infancy. Our progress in this respect is slow; this is desirable rather than otherwise, since it is expedient that we should not depart from the path that experience has proved to be safe, until the proposed improved substitute has also been rigorously subjected to impartial and decidedly effective trials. The cultivation of the soil and its vegetable productions has always been a fruitful theme for discussion. Dogmatic assertions founded on isolated facts on the one hand, and theoretical dogmas based on superficial observation on the other, have been the bane of practical progress. Those who have given much studied attention to the subject are prepared to encounter those conflicting opinions, aware that a science subject to so many varied influences cannot be read alike by all. It behoves us, therefore, to bear with each other, and not ridicule honest investigations, however much at variance with our own pre-conceived ideas. Such ridicule can proceed only from illiterate and shallow-minded individuals who are ever ready to give the bold negative to everything that exceeds their own limited knowledge. We would refer all such to the reply of Agassiz, when Hugh Miller told him that some of his opinions relating to his discoveries in fossil remains seemed to himself so extraordinary, that he was afraid to communicate them. Agassiz replied, "Do not be deterred, if you have examined minutely, by any dread of being deemed extravagant; the possibilities of existence run so deeply into the extravagant, that there is scarcely any conception too extraordinary for nature to realize."

As a fundamental principle in good culture, draining is now attaining that paramount attention it undoubtedly deserves. There are certain soils where no necessity exists for under-ground drains so far as the removal of water is concerned, such as are on gravelly or sandy subsoils. But the removal of water is not the only good effected by draining; the increased facilities for a renewal of the atmospheric gases to the roots of plants, and increased temperature of the soil are also worthy of notice. Where land is the least inclined to wet, draining is of far more importance than manure; the presence of air is necessary to decompose and disintegrate manures, and when soil is saturated with water, air is to a corresponding degree excluded. Instances

are on record where decaying orchards have been revigorated by draining alone. We think chemists are somewhat to blame in this matter, in directing attention too exclusively to the chemical constituents of the soil, regardless of its physical condition, which every practically experienced man knows to be, to say the least, of equal importance.

Grape culture is fast becoming a feature in American horticulture, and their management is also well understood—at least so far as they are grown for the manufacture of wine. The management of foreign kinds under glass is also being placed on a definite basis. Much discursive matter has appeared relative to the composition of soil most suitable to them. A liberal application of animal matter is considered by many to form a valuable compost for this plant. Others again consider such matter unnecessary, and sometimes injurious. That the roots of plants in contact with decomposing animal substances will also partake of its decaying properties has often been proved. That dead carcases may be applied with advantage when properly decomposed, does not admit of a doubt; but that better fruit or heavier crops have ever been produced by its use than have been secured without it, remains to be shown. It is the opinion of many that the grape plant is a *gross feeder*. The exact meaning of this expression is somewhat obscure.—It may be doubted whether those who use it have a clear idea of what is to be understood by it. If it means anything else than that the grape, like most other plants, will grow better on a rich than on a poor soil, the fact should be communicated. Instead of enriching the soil so excessively at first, which is well known to be injurious to all fruit-bearing plants, we propose a system of *feeding troughs*, whereby the plant can be stimulated at certain periods when it stands in need of such assistance. These feeders would be in the form of drains filled with charcoal, so arranged that at certain times they could be filled with water, and drained off when required. The facility of applying liquid manures by this method is obvious. That some such system will ultimately be adopted, instead of the present very expensive one that many have of forming borders, there is little reason to doubt.

In undertaking to give a monthly course of 'hints' for vegetable and floral management, I have again to remind the reader that they are not intended to point out *all* that should be done—such an object can be reached by nothing short of a complete treatise on gardening, and scarcely then. Still I hope to bring monthly before the reader a few hints and observations seasonable and practicable; and indeed in the major part describing courses of culture in which the writer is actually engaged. Detailing rather the principles of these operations than the modes, each will be better able to modify

them to suit his own circumstances, than he could by short rules of practice merely.

Strawberry culture has of late been on the increase, the introduction of many superior varieties has given a corresponding stimulus to superior cultivation. The principal points to be attended to in attaining this, is by loosening the soil by trenching to a good depth, and manuring liberally, to afford the roots a chance of descending out of the influence of scorching dry weather. Planting in the spring is generally attended with more success than fall planting, on account of the more favorable condition of the soil at that season. The best method we have seen practised where spring planting is anticipated, is to select young plants about the first of August, and plant them a few inches apart in beds. By this arrangement a large number of plants can be set in small space, where they can be watered without much labor if found necessary; and if care is taken in lifting them they will have a sufficiency of roots for immediate growth, and will amply repay the slight additional trouble. This method allows time for the preparation of the ground, the operations of digging, manuring, &c., being conducted with more advantage during the winter season than at any other time. Mulching during summer has much to do with successful cultivation; tan bark is much recommended for this purpose, and is said to form a specific manure for this particular crop. Without denying that it is so, we can only say that having used it more or less for a number of years, no decided effect has been observed in this respect, and have no preference, so far as that goes, to short lawn grass, hay, or anything similar that will retard surface evaporation.

General Remarks.—Advantage should be taken of every favorable opportunity during open weather, in forking and turning over the soil in the neighborhood of fruit trees; frost is a valuable ameliorator of soil, disintegrating its particles and favoring the decomposition of inorganic ingredients. The exposure of the soil to the atmosphere at this season is also a ready method of destroying eggs and larvæ of injurious insects that lurk in the vicinity of fruit trees. The plum weevil may be held in check by this means, more particularly if a sprinkling of salt is scattered over the ground after each operation. The preparation of ground for planting should be proceeded with, draining where requisite, and trenching and subsoiling in all cases; no after-treatment will compensate for superficial preparation in the first instance; parsimonious economy in this respect will be a perpetual source of annoyance and regret. S. B.

Flower Garden.—There are few things which add more to the beauty of a summer residence than a fine lawn or grass plat; but how few realise this

who attempt it. In the majority of cases the "lawn" is for the most part made up of coarse, unsightly weeds, or perhaps becomes brown and parched in appearance half the season. Frequently this arises from the work being only half done in the beginning, and future neglect makes up the rest. The *best* mode of obtaining a *good* lawn surface is to turf it over, choosing the "sods" from some old pasture. This is the cheapest mode too, in the end, if performed by those who understand it well. The other and most common way is to *sow the seed*, which, so far as my experience goes, seldom gives satisfaction, and is in many cases a source of continual annoyance and vexation, by the crop of weeds which springs up, frequently occupying the ground entirely to the exclusion of the grass. In some cases, where the lawn is of very great extent, and not immediately under the eye, seeding may be judicious; but in that case every care should be taken to have the ground thoroughly clean previously. It would be no ultimate loss if the ground were left unoccupied for a whole season, and kept constantly harrowed to keep out the weeds; and if any should after this come up amongst the grass, to have them pulled out thoroughly by hand. A little care and cost of this kind bestowed on the ground for the first few years, will be amply repaid. Whether the ground is to be turfed or seeded, it should be loosened up deeply. If by the plough, the subsoil plough should be employed; much of its green appearance in the summer season will depend on this course. It is not necessary that the ground should be particularly rich to produce a good surface, but it must on no account be poor. A deep, cool, sandy loam is a good bed to operate upon. It should not either incline to moisture, or coarse, rough herbage will be the consequence. Constant mowing, rolling, and sweeping of the surface and occasional top dressings of light manure, are then all that is sufficient to preserve it in winter.

What flowers are to fill each of the flower beds where they are grown in masses have probably been determined on in the fall, and preparation made accordingly. An eye should still be kept on the stock to see that it is sufficient, and where deficiencies are expected, a few additionals struck off to meet the occasion. Hyacinths, tulips, and other bulbs planted in the fall for spring flowering, are frequently drawn near the surface by the frost. It is well to place a covering of a few inches of half-rotten leaves or similar protection over them. The frost will not hurt them beneath the surface; but frequent freezings and thawings soon destroy them. Half hardy trees and shrubs also, that may seem to stand out well even to the present time of the season, are often benefitted by being protected a little from the sun towards spring. Plants will endure some considerable amount more of cold at this season than they will at the spring of the year.

GREENHOUSE.—Airing, watering, and keeping the tenants of this department clear of insects is, of course, a constant object of attention; but each of these require more tact and prudence than at any other season. I generally keep my house cooler than many; and so my plants, not growing fast at this season, do not require or receive much air. Those who have no stove, must have flowers in their greenhouses, in which case the temperature will have to be kept to 45° at least, and air will be required in proportion. Greater care is, however, necessary in its admission, or mildew will be encouraged. One of the best preventives against mildew is to accustom the plants to repeated syringings of cold water, which will render them less liable to checks from sudden changes of temperature caused by the admission of air. In watering, I have never been able to see much difference between the morning or evening for that purpose. I water at this season mainly in the morning; I find much advantage from keeping the atmosphere moderately moist by the syringe whenever the temperature is moderately low, avoiding at all times the ancient practice of "steaming," by pouring water on the pipes or flues. In regard to insects, the best security against these savages is constant watchfulness for their commencement; a "stitch in time," is the maxim here. The syringe against the plant laid on its side, will be generally effective; when they have escaped observation till they become established, the receipts for their destruction given in former Calendars must be resorted to, Many plants destined to form specimens may be potted this month; those with small fibrous roots are better deferred a month later. In preparing soil for composts two errors are frequently made—it is rendered too fine, and contains too much vegetable matter. The first renders it liable to become hard in the pots and impervious to moisture; the other gives it a tendency to become sodden and sour. The loam for potting should be *turfy*, the manure half fermented and half dried, the sand rather sharp, and the vegetable matter well decayed, and never more than one-sixth in proportion to the rest, except in a few instances, as Ferns, Lycopodiums, the Chinese Primrose, &c. It is a very common recommendation to "mix composts" at this season; I prefer to make up a soil at the time I want to use it, and to have it under cover, dry, and convenient to hand.

Specimens cannot be formed without judicious training and staking out, and that must be began at once, if fine plants are required for next season. A few things well grown are preferable to a whole "houseful" of weak, crowded things. It is a good time to pot verbenas and petunias, intended as specimens for fall exhibitions; but they must be kept near the glass, and in the coolest part of the house, pinched in as they grow, and trained out as above described—other soft-wooded greenhouse plants come under the same

suggestions. Chrysanthemums are often retained too long in the greenhouse, often to their irreparable injury. My plan is to cut them down immediately after their flowers begin to fade, and, turning them out of their pots, plant them out in some place protected from severe frost. Camellias, as they flower, are benefitted by occasional weak doses of liquid manure; if any are desired to flower particularly early next year, encourage them *now* to make growth as early as they can—success will depend on this. Wherever a slight heat can be commanded they may be very successfully grafted now. Daphnes before they go quite out of flower, ought to be repotted, if the soil seems any way sour. A coarse, open, loamy soil is especially essential for this tribe.

Hot House—Those who possess one will, at this season, be amply repaid the additional expense of fire heat by the superior floral attractions it embraces. Euphorbias, Habrothamnuses, Plumbagos and acanthaceous plants are peculiarly rich at this season. The same general remarks will apply as are referred to the last section. A heat of 55° to 65 will have to be maintained. Roses, and other things from the greenhouse, can be occasionally introduced through the coolest end, and give additional interest. In forcing, the principle is to "walk before you run," or come on slowly at first. Orchideæ need not be kept much over 55°, and kept just moist as a general rule, exceptions only to be noted where the plants seem inclined to make vigorous growth. A friend kept a Dendrobium nobile well over the last winter where the temperature was sometimes down to 35°. Such instances are useful, as it is the dread of their tenderness which makes so many fear to commence the cultivation of this most interesting tribe of plants.

Vegetable Garden.—Little is to be done here besides preparing pea sticks, bean poles, manure composts, and so on; but these things in reality comprise a good deal, tending considerably to forward spring work. Those who can command a little heat, either by dung or fire, are better situated.—Early radishes, salads, asparagus and seakale can be had wherever a temperature not exceeding 55°, with abundance of light and air can be commanded. Seakale and rhubarb are best obtained early by placing long pots or boxes over the plants, and then enclosing dung or leaves some feet thick over them. Cucumbers and tomatos will require more heat and more attention; they will not do well in a lower temperature than 65°, and the latter especially will not set its fruit well without an abundance of light and air; the tomato also sets its fruit best in a rather dry atmosphere, while the cucumber loves a moist heat.

T. J.

PENNSYLVANIA HOTICULTURAL SOCIETY.

The stated meeting of this Society was held on the 21st of December, Gen. Patterson, President, in the chair. Owing to the severity of the weather the display was meagre, yet interesting. Mr. Cope's gardener brought a collection of twelve plants, a specimen plant, a beautiful basket of cut flowers, bearing in its centre the 152d flower of the Victoria from the original plant, a bouquet and a display of Vegetables.

Peter Mackenzie exhibited his most beautiful seedling Camellia in flower, "Jenny Lind," the finest ever shown before the Society.

H. W. S. Cleveland, four bunches of Grapes, the Black Hamburg and Muscat of Alexandria, in a fine state of preservation, which had been hanging on the vines since the first of September.

Isaac B. Baxter presented Pears—20 of Passe Colmar, 10 St. Germain, and 4 Beurre d'Aremberg varieties. Thomas Meghran, gardener to Mr. Stewart, Torresdale, had a fine table of Vegetables.

Premiums were awarded as follows:

By the Committee on Plants and Flowers—collection of plants in pots for the best; specimen plant, for the best; design of cut flowers for the best; basket of cut flowers, for the best, to Thomas Meehan, gardener to C. Cope. The Committee call particular attention to a beautiful seedling Camellia of Mr. Mackenzie, not shown for the first time, but exhibited as one of the best American seedlings ever presented.

By the Committee on Fruits—for the best ten specimens of Pears, Passe Colmar, and for the second best, St. Germain, to Isaac B. Baxter. The Committee notice some fine Muscat of Alexandria, and Black Hamburg Grapes, in a fine state of preservation, which had been hanging on the vines since the first of September, and were grown by H. W. S. Cleveland.

By the Committee on Vegetables—for the best display by an amateur gardener, to Thomas Meghran, gardener to Mr. Stewart, Torresdale; for the second best, to Thomas Meehan, gardener to Caleb Cope.

The Committee on Fruits submitted a very interesting ad interim report upon the objects brought to their notice since the last meeting.

AD INTERIM FRUIT REPORT.

Philadelphia, Dec. 20, 1853.

To the President of the Penna. Hort. Society.

The fruit committee respectfully report, that since the November meeting of the society, the following fruits have been received by them.

From Mrs. J. R. Latimer—Pears for their name, grown by Dr. Charles Kuhn, of this city. These were unusually fine specimens of the *Echasserie.*

From Lloyd N. Rogers, Baltimore—Fifteen varieties of Pears.

1. The *Dix.*—Although the specimen received was not so large as some we have seen, yet it was in quality "best."

2. *Bezi de la Motte.*—This variety is exceedingly productive; the fruit is fair, of fine texture, and buttery, but so utterly destitute of flavor as to be worthless.

3. *Urbaniste.*—Specimens very fine. This Flemish variety is one of the best of the foreign pears. In the November number of Hovey's Magazine, we are told that "the Beurre Soule has long been familiar to Boston pomologists as the Urbaniste." In regarding the Buerre Soule and the Urbaniste identical, the Boston pomologists are, we think, in error. The specimens of the former exhibited in 1848, as was remarked at the time by one of their oldest pomologists, bore some resemblance to the Hanners (Cushing,) much more so indeed than to the Urbaniste, though we do not consider it synonymous with either of them.

4. *Gen. Taylor.*—Size under medium, $2\frac{1}{2}$ inches long by same width; form turbinate, obscurely pyriform, broad at the crown, color cinnamon russet, becoming fawn on the exposed side; stem $\frac{3}{4}$ of an inch long and $\frac{1}{8}$th thick, inserted into a very small cavity; calyx partially closed, set in a broad, not very deep, furrowed basin; core medium; seed dark brown, ovate, no angle at the obtuse end; flesh yellowish white, granular, becoming buttery and melting, but somewhat gritty at the core; flavor as high as the Seckel, aroma delicious; quality 'best;' maturity November. The Gen. Taylor is believed to be a native of Maryland. The tree supposed to be the original one grows near Baltimore, and is about 25 or 30 years old. It presents no evidence of having been worked; and Mr. Rogers assures us that scions, taken from suckers which sprung up from its root, have born fruit similar in all respects to that of the parent tree. We commend the variety to the attention of pomologists.

The following eleven kinds were not in a condition for eating: *Bleecker's Meadow, Downton, Figue, Fortunee de Paris, Ickworth, McLaughlin, Ne Plus Meuris, Sabine d'Hiver, Verte Longue, Winter Crassane,* and one unknown.

From Isaac B. Baxter.—Very large and exceedingly fine specimens of the *Duchesse d'Angouleme* and *Passe Colmar.*

From Charles Kessler, Reading—Two varieties of Pears, and five varieties of Apples.

1. The *Reading Pear*—A desirable winter variety, which has more than once been favorably noticed by us. Not yet mature.

2. *Winter Pear*—Medium size, roundish, fair yellow; for the table, scarcely 'good' in quality.

3. *Apple,* grown by Wm. Young, of Reading. Size large, $3\frac{5}{8}$th inches long by $3\frac{3}{8}$th broad; form conical; color beautifully striped and mottled with red on a yellow ground; stem $\frac{3}{4}$ of an inch long and 1-12th thick, inserted in a moderately wide, deep, acuminate cavity; calyx small, closed, set in a narrow, very superficial wrinkled basin; seed medium, plump, oval; core large; flesh not very juicy; flavor pleasant; quality "good."

4. *Apple* grown by Jacob Kurr, Middleberg, Bethel Township, Berks co. Size above medium, $2\frac{7}{8}$th inches long by 3 5-16ths broad; form round-oblate, obscurely conical; color fair yellow-white, with crimson blush, containing one or more distinct white spaces or streaks on the blush; stem $\frac{5}{8}$ths of an inch long and 1-12th thick, inserted in a wide, deep cavity; calyx small, closed, set in a small, shallow, slightly furrowed basin; seed dark brown, plump, ovate; flesh tender, rather dry; flavor pleasant; quality "good."

5. *Apple* grown near Reading. Size below medium, $2\frac{1}{2}$ inches long by $2\frac{3}{4}$ths broad; form roundish; color greenish-yellow, with a brown blush; stem variable, from 5-16ths to 5-8ths of an inch long and 1-12th thick, inserted in a deep, narrow, acuminate cavity; calyx large, closed, set in a deep, rather wide, obscurely plaited basin; seed light brown, broad, flat; flesh fine texture; flavor delicately aromatic; quality "very good."

9. *Apple* grown by Samuel Zeiber, Reading. Size below medium, $2\frac{1}{4}$ ins. long by $2\frac{7}{8}$ths broad; form round oblate; color red, in stripes of different hues, russeted about the base; stem $\frac{3}{4}$ths to 1 inch long, and 1-12th thick, inserted in a moderately wide, not very deep, russeted cavity; calyx small, closed, set in a very small plaited basin, sometimes almost obsolete; flesh crisp, subacid; quality "good."

7. The *Yost*—A fine apple, which has been noticed in several of our reports.

From Wm. V. Pettit, of Colonnade Row—a very large specimen of the *Niles* Pear. Size 4 inches long by $3\frac{3}{4}$ths broad, and weighing $1\frac{1}{4}$ lbs.; form roundish, oblong; color yellow at maturity, with many russet dots; stem $1\frac{1}{4}$ inches long and 1-5th thick, inserted in a narrow, rather deep, furrowed cavity; calyx small, closed, set in a deep, narrow, regular basin; seed light brown, large, plump, long, acuminate; flesh somewhat granular, becoming buttery; flavor not high, but saccharine and pleasant; quality "very good;" maturity December; an abundant bearer of fair and large fruit. This is a foreign variety, imported from France, by the Hon. John M. Niles, of Hartford, Conn. The imported tree was sent by him, some years ago, to his friend Wm. V. Pettit, of this city. Our attention was first directed to it by Mrs. Catharine Stanley, of East Hartford—an honorary and corresponding member of our society, and distinguished as well for her moral, social and intellectual accomplishments, as for her zealous and untiring devotion to

horticulture. Being unable to recognize the variety, and its true name having been lost, we designated it the Niles. Some of the Boston pomologists who are more familiar with the Easter Beurre than we are, consider it that variety; while others unhesitatingly say it is not the Easter Beurre. Without giving a decided opinion on this point, we will merely remark that it differs from the specimens we have been in the habit of seeing of the latter, in being more oblong in form, of a more yellow color, having a longer stem, a deeper and more regular basin, and in its earlier period of maturity.

From Alexander Parker—Two varieties of Pears.—One is called a *Native Butter Pear*, and resembles the Petre, the specimen is too much decayed for us to form any opinion of its quality. The others, sent for their name, are the Echasserie.

From Dr. J. K. Eshleman, Downingtown—*Pears for their name.*—The specimens sent were not in eating order; but in their configuration and general appearance they resembled the St. Germain.

From Mrs. John R. Latimer—The Cushing Raspberry, grown by Hartman Kuhn, Jr., of this city. Specimens remarkably fine. The autumnal fruit of this twice-bearing variety is even larger than that which ripens in summer, at the usual raspberry season.

From H. B. Lindley, Athens, Ohio, through Caleb Cope.—Fine specimens of an *Apple* for its name. Size, large, three and five-eighths inches long, by three and five-eighths broad; form, oblong-truncate; color, red in stripes, with, occasionally, russet markings; stem, half an inch long, sometimes very thick and fleshy, often rather slender with a fleshy appendage on one side, inserted in a narrow, not very deep cavity; calyx, medium, partially reflexed, set in a rather shallow, plaited basin; seed, small, dark brown, ovate; core, large; fleshy, rather dry and mealy, perhaps from being over-ripe; flavor, pleasant; quality, "good." This variety is unknown to us. Whether it is of Western origin, or an Eastern kind so altered by the soil and climate of the West as not to be recognized by us, we are unable to say. The forthcoming pomological work of F. R. Elliott, which we are anxiously looking for, will no doubt furnish us with much valuable information respecting the fruits of the West, and relieve us of no little of the uncertainty and perplexity that now embarrass us.

From Dr. James S. Rumsey, Fishkill Landing, Dutchess county, N. York A *Pear* and two varieties of *Apples*.

1. The *Pear* resembles the Martin Sec, and is probably that variety. Formerly the Martin Sec was much esteemed for drying and other culinary uses, but is now seldom cultivated.

2. *Buel's Favorite*, sometime called Spotted or Grey Pippin, grown by Dr. Rumsey from a scion obtained at Albany. Size, full medium, two and a half inches long by three and one-eighth broad; form, roundish; color, greenish yellow, with a faint fawn cheek; stem, three-fourths of an inch long, and slender, inserted in a deep, acuminate, russeted cavity; calyx, medium, set in a deep, moderately wide, furrowed basin; flesh, a little tough, owing probably to the specimen being a little shriveled; flavor, partakes somewhat of that of the Newtown Pippin, though in an inferior degree; quality, "good." The shriveled condition of the fruit may have caused us to give to this variety less merit than it deserves.

3. An exceedingly beautiful *Apple*, grown by H. W. Sargent, Wodenethe, Fishkill Landing. Size, large, three inches long by three and a half in width; form, broadly conical, obscurely ribbed; color, waxen yellow, with a brilliant vermilion cheek; stem, three-fourths of an inch long, and slender, inserted in a wide, deep cavity; calyx, closed, set in a narrow, rather deep, furrowed basin; core, large; seed, light brown, very small, roundish, terminating abruptly in an acute point; flesh, pale yellow, texture, tender, moderately juicy; flavor, mild and pleasant; quality, "very good." The tree which bore this fruit is small, has just come into bearing, and is supposed to be some known kind. It is not the White Calville. The fruit bears a considerable resemblance to the Belmont, which, however, is rarely so conical. If some friend would have the kindness to send us specimens of the Belmont, we might, possibly, be able to decide whether it is identical with the kind just described. The seed of the latter are peculiar; few Apples of its size have so small a seed, and still fewer of its form possess seed, so short and roundish. Be it what variety it may, its "very good" quality, fine size, handsome form, and brilliant coloring, appropriately adapt it to the table, and render it eminently worthy of extensive cultivation, if it should succeed as well in other localities as at Wodenethe. Scions, we trust, will be freely disseminated by Mr. Sargent and Dr. Rumsey.

Belt's Hybrid.—In noticing this interesting nut in our last report, we stated, from information we had received, that Joshua Peirce, a skillful nurseryman of Washington, had "succeeded in two instances, in grafting this variety on the English Walnut. Mr. Peirce has since informed us that this statement is partially incorrect. It is true, he succeeded in two instances, in grafting the Hybrid, not, however, on the English Walnut, but on the Butternut. Scions were inserted, in various ways, by him, on about a dozen stocks of the English Walnut without union taking place in a single instance. These stocks having been transplanted only a month previously, may, as he

intimates, in some measure account for the failure of the operation. In the two cases in which he was successful in working the Hybrid on the Butternut, his mode of grafting differed from any of those in ordinary use, and requires special notice. In our preceding report we alluded to the great want of success experienced by horticulturists in grafting the Walnut, and recommended two ways of obviating the difficulty. Mr. Peirce deserves our cordial thanks for communicating to us a third one, which in his hands has been attended by promising results. And that we might clearly comprehend it, he very kindly sent to a member of the Committee one of the two trees he had successfully worked. His mode, which is a species of inarching or grafting by approach, is performed in the following manner :—A portion of the scion, at a point about two-thirds of the distance from its lower end, is pared away, well down into the alburnum, two inches in length ; a corresponding portion of the stock, near its crown, is also removed. The scion and the stock, after being both tongued, are to be accurately adjusted, so that the inner bark of the two shall be in exact opposition. He then binds them firmly together, with a strip of bass matting, and applies a covering of grafting clay ; after which the earth is heaped up around it. Before proceeding to the operation, it is of course necessary to remove the earth from about the root of the stock sufficiently for to enable the heel of the scion to penetrate some distance below the surface. Mr. Peirce thinks he removed the top of the stock at the time the graft was inserted, but suggests the propriety of allowing it to remain until complete union between the scion and the stock is fully established, and then cutting it off close down to the connection. The theoretical advantages of the mode of grafting now described, in cases of unusal difficulty, are obvious ; and its practical utility is strikingly exemplified in the worked specimen very kindly forwarded to us by Mr. Peirce. Although not entirely novel, the plan had probably never before been resorted to in the case of the Walnut. A proceeding somewhat analogous has been employed in propagating the Camellia, in which case, however, the heel of the scion is immersed in a vessel of water, instead of being inserted in the earth.

Beurre Clairgeau.—This large and valuable new foreign pear, received from Hon. B. V. French, was noticed, and an exterior description given of it in our October ad interim report. The specimen, not being sufficiently mature at that time for testing, was laid aside, and was not cut till the 9th of December, when it was somewhat shriveled. We now complete the description commenced in October. Core under medium ; seed dark brown, small for the size of the fruit, elongated, narrow, plump, with a prominent angle at the obtuse end ; flesh yellowish-white, buttery, melting; flavor, perfumed,

and delicious ; quality "best." The Beurre Clairgeau has been described and figured both in the Horticulturist and in Hovey's Magazine; and its period of maturity is represented to be October and November. The advanced season of the year (December 9th,) when our specimen was eaten, may have enabled it to develop more completely its fine qualities. To this, or to some other auspicious circumstance, may perhaps be attributed the somewhat higher estimate expressed by us of its quality, than that entertained by some other pomologists quite as competent as ourselves to judge of its merits. At any rate we are fully persuaded that the specimen examined by us was, in all respects, justly entitled to the highest grade of excellence.

From the Hon. George W. Woodward, Wilkesbarre, Pa.

Blackberries.—Having learned from various sources that the blackberry grown in the valley of the Wyoming was of unusal size, we were anxious to see specimens of the fruit. This the kind attention of Judge Woodward enabled us to do, about sixteen months ago. The specimens then forwarded to us, though in a dried state, were remarkably large; and we hoped, by planting the seed, to obtain varieties still finer; but unfortunately none of the seed vegetated. The specimens now received were gathered during the summer of the present year at their usual time of ripening, and put into a bottle of alcohol. The bottle having been placed on its side, the cork came out and the alcohol escaped. The berries, therefore, did not retain their full size, and yet some of them measured one and one-eighth inches in length. The number of pips contained in each is unusually great; in one berry we counted 113, in another 146. In form the fruit resembles that of the cultivated high bush variety of Boston.

The Blackberry is, no doubt, capable of considerable improvement in size and quality. With a view of ascertaining to what extent this can be accomplished by cultivation, by crossing, and by raising seedlings, we are desirous of obtaining some of the most remarkable kinds from different sections of the country. Judge Woodward has very kindly promised us plants of the one grown in the vicinity of Wilkesbarre. To C. M. Hovey we are already indebted for the Boston improved High Bush variety ; and to Wm. R. Prince for the White, and the Parsley-leaved. The New Rochelle, from Westchester county, New York, we have not received ; will Mr. Lawton send us by express a good sized plant of this variety? The blackberry, like the raspberry, may be propagated with great ease, and with almost magic rapidity by division of the root into small sections.

The Library Committee presented their annual report upon its condition, showing that thirty-one volumes had been added thereto, that ten dollars had been received from members for fines, and that one-hundred and seventy-five dollars were expended.

The Treasurer submitted his semi-annual statement.

The Committee establishing premiums presented a schedule for the year 1854; which being slightly amended, was adopted.

The Secretary reported that Ellis Yarnall, of this city, had presented a parcel of horticultural objects, which had been given to him, for distribution in this country, when in London, at the closing of the World's Fair, by Dr. J. Forbes Royle, of Calcutta Royal Botanic Gardens, whence those products had been sent to that exhibition.

Ordered, That the thanks of the Society be tendered to Mr. Yarnall and Dr. Royle for the gifts, and the articles referred to the appropriate committee.

Twelve new members were elected.

A GLANCE AT REPRODUCTION OF PLANTS BY SEEDS.

By Walter Elder.

For the Florist and Horticultural Journal.

How inconceivably great does the Omniscience of God appear in his wonderful works of creation. In the study of botany we see that he has furnished every species of plants with the powers and faculties of reproducing their like by seeds, in one class, to which the majority of species belong; every individual plant is a perfect whole of itself in this respect; which perfection lies in each and every blossom, whereas the perfection of another class lies in two differently furnished blossoms on the same plant, while in a third class it requires two plants with differently furnished blossoms to make a whole; and these arrangements are so fixed and immutable that botanists class them as the "eternal laws of nature," and there is as little invariability in varieties as in species. In this respect, it is not in the blossom but in the sexual organs where stability rests—if it were otherwise, on what would animal life depend for subsistence? Suppose that all vegetation were to change sex and become abortive for one year only; what an awful desolation would ensue—it was only the wise foresight of our Maker which renders these laws unchangeable.

All cultivators of the soil should study botany, at least, so far as reproduction is concerned; as it would enlighten their paths many times when they grope in the dark without it. If agricultural periodicals, as well as horticultural, had departments of botany, and publishers enlist the assistance of scientific botanists, they would be doubly remunerated for their extra expense by increased circulation and the additional price their journal would command; the knowledge conveyed through such papers, would be tenfold more beneficial than whole books on the subject, as no more information would be given in any one number than an intelligent cultivator could study and comprehend in a month—and by such instructions he could at once discover the causes of success and failures, and would be on the alert to avert any calamity and guard himself against loss. What, let me ask, would the subscription of such journals be, when compared with the benefit of the knowledge acquired therefrom? But on the other hand, editors would be required to have no favorites, nor tolerate such childish folly in the botanical departments as has been published in the late "strawberry question"—three very intelligent and enterprising young men, having discovered of late, that their callings were too contracted for their talents, commenced a very sweeping revolution in botany; one asserts that he changes the "eternal laws of nature" by simple culture; another regenerates all varieties back to their original species with his pen, and makes the sexual organs keep tally with all changes and developments in other parts of plants. A third outstrips both the other two, for his plants change sex every year without any assistance at all; so this "trio" have pitched into the "old fogies," "forced them to believe against their will," and driven them to the wall for "being of the same mind still."

When men do think within themselves
Omniscience is concentrated,
They sneer at those who stand by truth
That 's by Nature's laws authenticated.

Now, as every body does not understand all scientific technicalities, I will ask our "young revolutionists" a few plain questions. Can they regenerate the double stock gillyflower back to its original species? or in other words, raise it to a state of hermaphroditism and produce plants from its seed. It is propagated by cuttings. If the roses Prince Albert and Rose de la Reine were left to nature, would they become alike if their originals are not alike? Louis Phillippe and White Daily Roses have the same original—would they become alike in color and habit if left to themselves? They say change in one part changes all parts.

Let us now look into some of the many cases of abortion in reproduction. If there is much rain or humidity in the atmosphere while the plants are in bloom, the pollen gets clogged in the anthers and fails to impregnate the pistils, which proves abortion; high winds at the time the pollen is matured, carries it off, and causes a failure; frost may blight the pollen, and the sun may scald it, and prevent reproduction. If a plant is in an over-luxuriant state of growth, its succulency either destroys the albumen or carries off towards the enlargement of the plant, and prevent the formation of pollen. Want of sufficient light and air has a like effect.

The above are accidental causes; the following are natural causes. An imperfection in the sexual organs often prove abortive; and where there is a regular deficiency of either stamens or pistils there cannot be a reproduction. It matters not the outward appearance of the blossom, if any of the organs are deficient. When this is the case naturally, then no power on earth can amend what nature has withheld; every plant takes its character in this respect at its birth, and remains so during its existence. Plants with very double flowers seldom bear seeds, although their sexual character is perfect. Pistils and stamens are as numerous in a double flower as they are in a single blossom of the same species; but then they are not so fully developed; owing to the crowded state of the petals, the pollen is not always properly matured—or if it is, the petals prevent its proper diffusion, and cut off the proximity of pistils and stamens, and prevents impregnation. But yet the sexual character of these plants is unchanged, as they sometimes produce seeds from their fullest flowers. All plants belong to one of three classes, according to their sexual characters—hermaphrodite, pistillate and staminate. Hermaphrodites have all the faculties of reproduction; pistillates are strictly female; staminates are males. Staminates are generally leaner, more erect and less spreading, and of a drier nature, and have smaller and stiffer leaves than the pistillates; the leaves of the pistillates are larger, softer and more glossy than staminates; they can never bear seeds unless they get impregnated with the pollen of staminates; when that is the case they are doubly prolific—they sometimes enlarge their fleshy receptacles called fruit, without being impregnated; but then they are without seeds, generally deformed, and very apt to mould or damp off.

We really flattered ourselves that the strawberry question was settled. Facts and science are so entirely against the Cincinnati theory, that we thought that its advocates could have nothing more to say, but here we are again delighted with the information that certain intelligent and enterprising young men have not room for their extraordinary talents, and have commenced a revolution in botany. If authority would have any effect with Messrs. Longworth, Elder & Co., we could bring forward the opinion of men as old as any of them, men who are celebrated botanists, directly denying the truth of their theory. But thus far they have done nothing but talk of their experience which is so very great, that they have not had room left for observation. The study of a few books would be of great benefit to them. We respectfully suggest that they should invest $1,75 in the purchase of Gray's Elements of Botany; after they have studied that carefully for a few years, they might advance to Lindley's Introduction, or Schleiden's Principles of Botany, but by the time they had gotten half through Gray, they will be

heartily ashamed of ever having believed any such theory. We would like to hear Mr. Elder's opinion of a very frequent variation which he must have seen, which is, the fact of petals taking the place of the anther of the stamen in some varieties of the Fuchsia. This is the same difference of development which takes place when stamens are changed into pistils. According to his theory this should be constant, but it is not.—Ed.

We are now entering upon the third volume of the Florist, the success of which, wished for by some and doubted by many, is no longer a problem. It is now established upon a firm basis, with an already sufficient and rapidly increasing circulation. The favor which it has met with in nearly all quarters, is very gratifying. Except in one or two immaterial instances, the hand of fellowship has been extended to us by our fellow-laborers in the field of agriculture and horticulture; and we hope to further merit their approval and that of our subscribers in the years which are to follow. We hope to be more punctual in future, but we must plead in excuse for the past year that the causes of delay were entirely beyond our power to remedy. We have a start now, and intend, if possible to keep it. If those of our friends who will take the trouble, will endeavor to increase our subscription list, they will do us a lasting favor.

The American Handbook of Ornamental Trees; by Thomas Meehan, gardener. Philadelphia, Lippincott, Granbo & Co.

To the amateur desirous of improving his grounds, the choice and disposition of trees is of the very first importance. A country or suburban residence without trees is not only tasteless, but absolutely ridiculous. This little book, which gives a description of the deciduous and evergreen trees, native of and introduced to America, will enable any one to select such trees as may best suit his purpose. It is accompanied by a short account of the best modes of transplanting and cultivating ornamental trees, which, from the known practical skill of the author, may be deemed reliable.

The author's "original design was to bring out a small volume for the numerous admirers of the indefatigable botanist, Bartram, describing the trees now growing in his far-famed old botanic garden. After the notes were prepared for this object, he was induced, by the kind encouragement of his friends, and in the face of a great public want, to throw them into their present form. In order to make the book of standard accuracy, nothing has been admitted into the body of the work that has not been the result of the personal experience of the author. No tree is described as being in cultiva-

tion which the author has not himself seen; and in most cases the reader is referred to the tree, with its height and dimensions, from which the description is taken." We can cordially recommend it to our readers as a useful manual.

LARGE DECIDUOUS CYPRESS.

We find in the English Gardener's Chronicle, the following as dimensions of what is quoted as an enormous Cypress tree, quite a lusus naturæ there. It is growing in the vicarage of Boxley, Kent: height sixty feet, the spread of the lower branches, which feather quite to the ground about forty-five feet, girth nine feet four inches at two feet from the ground, and seven feet three inches at six feet. It stands on the edge of a small pond, in which its roots luxuriate, being natural to swampy ground. The thought occurred to us what is the girth of that magnificent specimen growing in the Bartram Garden, Philadelphia, and in a similar situation, near a small pond, if we recollect rightly. Perhaps our friend T. Meehan can inform us. In Buxton's Mexico, a cypress is alluded to, which would girth seventeen yards, over fifty feet, and there were many others of equal size on the Chapultepec heights, near Mexico, some of which were sadly battered by the American cannon at the time of the storming of the fort. That our English cousins should consider a tree of nine feet girth, worthy of a newspaper paragraph, shows at least that they have not been to America, and reminds us of the Englishman, who was relating with great gusto to his American visitor the *natural* wonders of their Island, and among other things, as a fact, whether he believed it or not, that their great river, the Thames, was really one-hundred and fifty miles long. He had never heard of that small stream, the Mississippi, over two thousand miles in length.—*Farm Journal.*

In page one-hundred and seventeen of last year's volume, the dimensions of the Bartram cypress is given as one-hundred and thirty-seven feet high and twenty feet in circumference.

Subscribers are particularly requested to send in their subscriptions as early as possible. And we again, ask the many who still owe their last year's subscription to forward the same by mail. We cannot pay a collector to travel in every direction in pursuit of such small sums.

THE FLORIST
AND HORTICULTURAL JOURNAL.

BEGONIA PRESTONIENSIS.

The beautiful plant which we figure this month is the first hybrid which has been raised in the now very popular genus Begonia. It was obtained by Mr. T. Frost, gardener to Mr. Betts, at Preston Hall, in the county of Kent, in England, from seeds of *B. cinnabarina*, fertilized by *B. nitida*. It has the foliage and flowers of the first, with the shrubby habit and disposition to flower abundantly of the latter. It has not yet flowered in this country, but has lately been introduced to this city.

For the Florist and Horticultural Journal.

THE GENUS DIANTHUS AND THE CULTURE OF THE PINK.

The genus Dianthus, as its name imports, is truly divine, and numbers amongst its numerous species a collection of the greatest gems of Flora, many of them being not only lovely to view but possessing the desirable accompaniment of the most delicious perfume ; indeed, so exquisite is this latter quality in some kinds that we may seek through the whole vegetable kingdom and not find it surpassed. Who that has snuffed the delightfully aromatic, and pungent sweetness of the Garden Pink will deny this assertion? and even the remaining few that have not experienced the gratifying sensation in reality from the material body, know well of the fact from the frequent allusions made to it about the time when Cupid roams amongst the valentines. We are here reminded how frequently we culled, as we thought, the sweetest flower in the garden, and that flower a Pink, to accompany us on that errand of love, which most persons are prone to in their youthful days, and with what satisfaction as a duplicate of sweetness has this little token been presented.

Somehow or other, Mr. Editor, whenever I begin to write about flowers, I cannot help associating them with the more tender feelings and higher sentiments of human nature, so you must excuse this lengthy preface.

Dianthus belongs to the class Decandria, and order Monogynia of Linnæan, and the order Caryophylleæ of the natural system of botany. The geographical range of this interesting family is, with two or three exceptions confined to the European continent and adjacent islands, being mostly Alpine in character, the greater part are found in mountainous regions. But although the Old World is its fatherland, most of the species do equally well in the New, the pure dry atmosphere of which is conducive to its well doing. Hence we find the cultivation to be most easy when suitable circumstances are provided; and these circumstances are very simple.

Amongst the most desirable are D. plumosus, superbus, caesius, deltoides Caryophyllus, (the Carnation) Armeria, (the Catchfly) barbatus, (Sweet William) atrorubens, chinensis, capitatus and hortensis. It is the last, viz, hortensis that I would at present treat of. Having become a recognised "Florist's Flower" more attention has been paid to it than to any of the others with the exception of the Carnation, and it is now generally known (though not very characteristic) as the Pink. There have been different opinions respecting the originality, as being a species distinct in itself. Some have considered it as a sub-species of D. Caryophyllus, while others think it has proceeded from D. deltoides, but there is as much probability from external habit and appearance, and likewise in the peculiarity of its adaptedness in cultivation and propagation that, D. plumosus is the original parent, if it has emanated from any one of them. D. Caryophyllus is very changeable from seed, which I have often proved, but these changes always run into a different style of inflorescence to that of the Pink. The D. deltoides may have contributed somewhat by a cross with D. plumosus, but the latter contains in itself every element in structure, habit, and general appearance to show to any one at all acquainted with hybridization, that a class of flowers similar to the present common kinds might soon be obtained, and if so, certainly through them up to the present best prize varieties. Another proof is, that, from seed D. plumosus, though subject to change in the flower, still retains the general character, while the habit of the plant, which is very like the pink, is mostly the same. Now it is just as likely that our present subject is as original as are the others, if there is any originality about the matter, but if we are to have an affiliation, let us have the most likely parent. The fact is, the whole genus so far as I have had the opportunity of observing will fertilize with each other so readily, that if two or more are growing in near proximity, and blooming at the same time, there will be in the next generation from seed a whole host of differences; therefore when it is intended to keep the Pink from being contaminated with others, be careful to keep it from their influence. Some of the species when judiciously crossed produce the most beautiful hybrids, not only in color,

but in habit of plant and abundance of flower, and this family offers to the lovers of flowers a fine opportunity for producing many splendid examples of the willingness of nature to bend to our wishes, so long as we do not interfere with her unchangeable and primitive laws.

As the Pink in its best character is an established Florist's Flower, like all other families of the same designation, there are acknowledged criteria of excellence to judge its qualities by. It is also divided into four classes as follows, Purple Laced, Red Laced, Dark Eyed, and Red Eyed. The laced classes have besides the dark centre, a neat lacing or belt, surrounding the outer edge of each petal, while the eyed varieties do not possess it.

The following is the criterion of a good Pink. The stem should be elastic, and strong enough to support the flower without drooping, not less than ten to twelve inches high, which will elevate it above the foliage. The calyx or pod ought to be proportionately long, straight, and not too narrow, but correspond with the size of the flower, the base nicely rounded off towards the stem, the upper divisions equal in size, not incurved but rather turned outwards, so that the flower may expand freely and without bursting out at the side. The flower should be not less than two inches in diameter. The petals should be broad, flat, and substantial, the nearer they approach the form of a rose leaf the better. There are few varieties that are perfectly free from indentation on the edges, but it is highly desirable that they should be. It is not desirable for the flower to be too double, but there ought to be a sufficient number of rows of petals to show symmetry without being crowded, each row being smaller in size than the next below, lying over each other in a regular imbricated form. The eye or central dark portion may form about one fourth of the diameter of the flower, and if a laced kind, the belting should be even, and equal in breadth, surrounding the outer edge of each petal, and uniting with the eye. Whatever the color, it ought to be uniform, rich and solid. In the Purple, a rich purplish maroon, and in the Red, the nearer approach to scarlet, the better. In an Eyed variety, the color should be confined entirely to the eye, the outer edges of which must form a circle well defined. In all the class the white ought to be clear and distinct, without blemish.

Propagation is most readily accomplished in this climate by layering in in the same way as the Carnation, and about the middle of July is the most suitable time. If the base of the shoots be merely covered with earth, roots will be emitted after a time, but if a little extra trouble is used with each individual layer, and the slit made longitudinally on the under side, commencing at the bark, and cutting up the third of an inch through the middle, a better plant is obtained. If it is desired to have the flowers in

the best character, they ought to be grown from strong single crowns, and not have any long straggling portion beneath; without this precaution, the colors are apt to run or be undecided in marking. The British Florists propagate mostly by pipings, (which are simply the tops of the shoots) and struck under hand glasses, but here the heat is generally too great for this method at the most suitable time, and if put in without glass, even in a shaded spot, they are apt to die off. After trying different methods I have found layering the best and most expeditious.

Our present little pet has escaped more than perhaps any other class from the quack notions and nostrums which are so generally prescribed, for too rich a compost only injures it and makes the colors run. The most suitable soil is a fresh loam only ordinarily fertile, the top spit of a pasture with a fourth part cow dung, and both thoroughly rotted together, is as good a base as can be desired. Care should be used that there are no wire worms (the larvæ of Elytra) in the soil, as they are very destructive, not only to the Pink, but also to the Carnation.

Where perfection is studied it is best to have nothing else in the same bed, which may be twelve inches deep of the above named material. Plant the middle of September, about eight inches apart, and make the soil somewhat solid around the neck of the plants, but do not bury too deep. If dry weather should occur give a good soaking of water, but keep as dry as possible through the winter. At the approach of severe weather cover over the bed with cedar or other like branches, which will prevent the plants from being lifted by alternate frost and thaw. Towards the middle of March is a good time to uncover, when a top dressing of an inch deep and the same compost will greatly invigorate the plants and assist the bloom. As the flower stems approach towards blooming, have in readiness a quantity of slender twigs, fix one to each plant and tie loosely with soft thread. When the flowers begin to expand if it is desired to have them quite perfect, examine the pods and if they appear to be opening more on one side than the other, take a pen knife and slit the closed divisions equally, but not so far as to let the petals fall down and out of place; at the same time tie a small thread round immediately under where slit, this will prevent "bursting" and keep the flower uniformly in shape. If there be during blooming a thin covering of muslin fixed over the bed and raised sufficiently high above the flowers so as not to rub them, the flowering will be considerably prolonged, and the colors much more distinct and clear.

Where it is desirable to save seed, and keep the progeny in class character, each class ought to be kept separate, and the flowers assisted by artificial impregnation, choosing those of the same class with good markings to hybridize with.

The Pink is easily forced, and is a most desirable acquisition amongst early spring flowers. The only care requisite to accomplish this object is very little. In the beginning of September, place as many plants as may be desired into suitable sized pots, and plunge in sand, ashes, or any dry part of the garden until the first of January, when they may be taken up and placed near the glass, in any house where a temperature of 50° to 55° is kept in the night. A rose house is a very suitable place, but mind to keep them *freely exposed to the sun*, for in this is the main secret of success. Thus treated they may be had in bloom from the latter part of February, and I know of no flower that will give more satisfaction, or better repay the little extra trouble bestowed.

There are some persons who may think that these practical details take up much time and expense, and as the commoner sorts of Pink will grow and bloom without any attention, that it is useless to bestow labor on so useless a hobby. The same would think it an absurdity to be praising the beautifully circular, and even outline of a flower, while they would look with enthusiastic greediness upon the outer surface of a dollar; and the Florist may with the same propriety say, that it is just as useful to ride in a comfortable covered donkey cart, as to be seated in the most elaborately constructed and handsome carriage. Apart from these differences, surely the human intellect has been given for other purposes besides the acquisition of money, or the luxuries of man's invention. May we not then with reason advocate the cultivation of the mind, by studying the more noble and expansive ingenuity of the Great Architect of the Universe—nay, arguing from the same source, have not these little delicate beauties, the flowers, some demand upon our attention, and are they not placed so much under our control, and so immediately within our reach by an all wise Creator, for the purpose of leading the mind from those more sordid pursuits, and an unerring testimony of the kindness of a God, that we may not amongst our multitudinous cares and distractions forget Him. Do not they lead the mind to contemplation, and force us to approach Him with reverence and gratitude for the many blessings which he has bestowed upon us. Grudge not then the time as lost that is devoted to the cultivation of flowers, but rather appreciate the advantages offered through them, by the repose of mind, and the good feeling which is produced thereby to each individually, and to society generally.

Respectfully yours,

Wm. Chorlton,
Gardener to J. C. Green, Esq., New Brighton, S. I.

For the Florist and Horticultural Journal.

DARLINGTONIA CALIFORNICA.

It has been hinted to me, in a very modest manner, by a talented lady contributor to your journal, that a few short remarks from me, on the locality and habit of the *Darlingtonia californica*, (Torrey) new California Pitcher plant, might prove acceptable to the readers of the FLORIST. But I find, after reading the full and very lucid description of this very interesting plant, by my friend Dr. Torrey, that little is left for me to say in reference to it, save to relate the circumstance of its detection; to which I may add a few observations on some interesting trees and shrubs of Oregon and California, which came under my notice, and of which little is known by the lovers of beautiful trees on this side of the Rocky Mountains.

In the autumn of 1841, a party belonging to the United States South Sea Exploring Expedition, of which I was a member, started from the Columbia river to cross overland to San Francisco; and as the country through which we had to pass was rugged, and in many places mountainous, and the route which the party pursued, led among Indians, hostile to the white man, this, together with the fact that the time to perform the journey was limited, caused us to make long marches—sometimes as much as forty miles per day. The season being far advanced, most of the plants of the country were out of flower, which made the excursion less interesting to the botanist than it otherwise would have been a few months earlier.

On the fourth of October, while crossing the *Shaste Mountains*, about 41° N. lat., and a few miles south-by-west of Mt. Shaste, and only a short distance from Destruction River, (a tributary of the Sacramento;) the country here was dry, and the valleys and tops of the minor ranges of mountains covered by a forest of large trees, composed principally of *Pinus Lambertiana*. In this forest there were numerous openings; I had here fallen a considerable distance behind my companions, and in one of these openings, on the margin of a small stream that I could step across, I detected the *Darlingtonia*, (then out of flower,) growing in bunches, in company with a species of *Epipactis* and a *Parnassia;* there was no swamp or morass, but only a few narrow wet creeks bordering the streams, which I am inclined to believe takes its rise in low swamp land at the base of the mount.

The appearance of this *Sarracenioid*, pitcher-plant, in the distance, reminded me much of some species of *Iris*, particularly the *I. pseud-acorus*. The notes in my possession, taken on the spot at the time, are brief; and the specimens of the plant being in the hands of Dr. Torrey, I therefore take the liberty of transcribing for the benefit of your readers, his very excellent de-

scription—which is better than any thing I could say in regard to the plant, even were the specimens before me.

The plant is perennial. "Root-stock short and thick, producing numerous stout, dark-brown, fibrous roots. Leaves all radical; the adult ones from eighteen inches to two feet or more in length; the petiole or pitcher tubular, gradually tapering downward, and singularly twisted on its axis about half a turn, marked with strong parallel and longitudinal veins, which are connected by very slender veinlets. The summit is vaulted, and formed into a sac about the size of a hen's egg, on the under side of which is an oval orifice about half-an-inch in diameter, opening into the cavity of the pitcher. The areolæ of the sac, and also of the back of the tube, on the upper part, are discolored (of a dull orange-color, in the dried specimens,) as in *Sarracenia variolaris* and *S. Drummondii*. Along the inside of the petiole is a narrow wing, which is single, except at the base, where it separates into two plates that clasp the scope and the base of the superior leaves. The lamina is narrow at the base, and deeply divided into two somewhat unequal widely-spreading lobes, which are oblong-lanceolate, rather acute, bent downwards, and often also backwards, the inner (or properly upper) surface very minutely pubescent. The pitcher inside the hood is retrorsely hirsute, with short, conical hairs; from thence downward it is glabrous, but towards the base it is lined with long, slender hairs, also pointing downwards; at the bottom remains of insects were found. Neither these hairs, nor those of the lamina, appeared to be of a secreting character. The scape is from one to four feet long, flexuous, angular, glabrous, and furnished with sessile clasping straw-colored scales. These scales are foliaceous and alternate, the lower ones distant and lanceolate, the upper more and more approximated and broader, while those near the flower are oblong-ovate and imbricate. They are marked ed with longitudinal veins, which are forked above; the upper surface is paler than the lower, and under a lens shews minute conical papillæ. The flower, when fully expanded, is nearly two inches in diameter. The calyx consists of five oblong, rather acute sepals, which are of a pale straw-color, and are quincuncially imbricated. There are no calyculate bractlets at their base. The corolla is five-petalled, about the length of the calyx, and its æstivation is likewise quincuncial. The petals are oblong, pale purple, marked with deeper reticulated veins, and are apparently not connivent over the pistil. They are furnished with a small ovate, concave lamina, and a very broad, obovate claw, which is two or three times larger than the lamina. Stamens from twelve to fifteen, hypogynous, inserted in a single series, and partly concealed by the dilated summit of the ovary; filaments short and rather stout; anthers oblong, with the cells very unequal and opening longitudinally, turned by the twisting of the filament, so that the cells are anterior and posterior, the smaller cell lying against the ovary. Pollen simple and spherical. The ovary is turbinate, five-celled and somewhat five-lobed, concave and dilated at the summit, so as to exhibit a sort of margin which projects over the stamens; the columnar style is short, and five-cleft at the summit; the narrow segments diverging and stigmatose at the extremity on the inside. Ovules very numerous, anatropous, covering the large placenta, which projects into the cells of the ovary."

Dr. Torrey is not quite convinced that the hairs in the pitcher, nor those of the lamina, are of a secreting character; yet I am satisfied that the pitcher, when collected by me, contained water; but as rain water, or even dew, cannot enter the orifice of the pitcher, owing to its vaulted summit, it necessarily follows then, that the water found by me in the pitchers must have been secreted by some internal organ. I have not had the satisfaction of seeing the flower in a recent or dry state, but Dr. G. W. Hulse, of New Orleans, in May, 1851, detected the plant in bloom in the same region, and, as Dr. Torrey says, "perhaps in the same spot where it was discovered" by me nearly ten years before; and there is no farther evidence that I am aware of, that it has been found there or elsewhere by any other collector; so that the plant appears to be very rare—and so far, it is the only representative of the order west of the Rocky Mountains. In your November number for 1853, in a short notice of *Darlingtonia*, the difference between it and *Sarracenia*, as quoted from Dr. Torrey, is there stated; and the Doctor concludes his remarks on his new genus by offering some considerations in regard to the opinion of M. Planchon, respecting the close affinity of *Sarraceniaceæ* and *Pyrolaceæ;* and although such an affinity may at first view appear remote, yet any one who will take the trouble to examine the nature of the floral envelopes, the tendency of the stamens to be definite, together with the structure of the ovary and radiating stigmas, must discover a striking relationship exists between the two.

In individuals composing the order of *Coniferæ*, Oregon and California are rich in examples—some of them of great beauty, and many of gigantic dimensions. In the Smithsonian contributions to knowledge, for April, 1853, we find a figure and description of *Libocedrus decurrens*, Torrey. This tree was first detected by the botanists of the United States' Exploring Expedition in 1841, between 40 and 42° N. lat., growing in solitary specimens on the tops of the Shaste mountains; and found also, but we believe a little farther south, by Dr. G. W. Hulse. It is really a noble evergreen tree, with a trunk often six feet in diameter, and attains a height of one hundred and twenty feet and upwards; its branches are numerous, assurgent and twiggy,

forming a dense dark-green, rather conical head; the leaves are smal land closely imbricated. The next evergreen tree of importance, as a subject for ornamental purposes, is the Thuja gigantea, Nuttall. This we found inhabiting the rich and gloomy valleys of the coast range of mountains north of the Columbia river, and is not excelled for beauty by any species of the tribe from any country with which we are acquainted; and it was not an unusual thing to fall in with trees of it one hundred and fifty feet in height, with a trunk from six to eight feet in diameter, which divides into branches that are bold and spreading in their direction, forming an irregular deep-green top. To get possession of a stock of seed of this, and the *Libocedrus*, would cover the expense of a trip to the north-west coast for that purpose alone, where also so many fine species of the genus *Abies* and *Pinus* could also be obtained, very few of which are at the present time in our collections.

Arbutus Menziesii, Pursh; Menzies' Strawberry Tree, is another evergreen tree, well worthy of our consideration, attaining to a height of thirty to forty feet, having a smooth trunk, and branching, broad head, with large, smooth, entire leaves. But still more important as an ornamental evergreen tree to be yet introduced, is the *Castanea Chrysophylla*, (Douglass) Golden-leaved Chestnut. This is found inhabiting high lands from the Columbia river, as far south as the Keamet river. The tree is pyramidical in form, from thirty to fifty feet high, bearing broad-lanceolate, acuminate, entire, smooth leaves, from four to six inches in length, of a dark green above, and a rich golden yellow below. In company with this last tree, but more frequently found on low rich lands, and about the same size and habit, we found the Cornus Nuttallii, a deciduous tree, the flowers of which are white, and much larger than the *C. florida* of our woods.

The Garrya elliptica, (Douglass,) is a very interesting evergreen shrub, from eight to twelve feet in height, inhabiting rocky situations on the coast range of mountains from the Columbia river to the upper waters of the Sacramento river.

A great many more trees and shrubs peculiar to these regions, that would prove an acquisition to the arboriculturist, might be mentioned, such as species of *Quercus*, *Acer*, and *Pyrus;* but we fear that more has already been enumerated than will find place in your journal.

W. D. BRACKENRIDGE.

NEW OR RARE PLANTS,

FLOWERED FOR THE FIRST TIME THIS SEASON, AT SPRINGBROOK.

PLEROMA ELEGANS. A melastomaceous plant, with a free habit of growth yet small shining leaves, and large purple flowers from two to three inches across. The flowers appear in threes, at the ends of last year's shoots, and are very handsome. It is a fine species for making a showy spring flowering specimen. It thrives well in a warm, moist temperature, taking more light than most melastomaceæ, and growing well in turfy loam mixed with broken pots. It was imported by Mr. Cope, from Lee & Co., London.

ERYTHRINA MAGNA ROSEA. The value of this plant consists in its *distinctness* from other kinds in cultivation. Its color is of a delicate light purple rose, but the size of the flower is not equal to the well-known *E. cristagalli.* This may be owing to my plant being very young, a cutting just rooted having been received from Mr. Buist less than twelve months ago. It will thrive in any ordinary culture usually given to greenhouse plants.

DENDROBIUM SANGUINOLENTUM. An orchidaceous plant originally received by Mr. Cope from Messrs. Loddiges, of London. It is not so handsome as many of this tribe, but still very ornamental. The shoots and leaves have a reddish tinge; the flowers which appear on the matured shoots, are about one inch across, of a pale orange color, but with an edging of purple at the extremity of the petals. It thrives well on a block of wood, with an abundance of loose moss tied around it, in a moist atmosphere kept at about 60°.

BEGONIA ODORATA. Throughout the summer I deemed this plant too coarse and leafy to be of great value; but the *sheet* of pinkish-white flowers it has presented fully counterbalances other faults. Its leaves are large, in the way of *B. nitida;* the flowers also come out in similar trusses, are each about the same size, and are slightly odorous. It is a strong grower, readily propagated in the spring by cuttings, grows well in the greenhouse in summer, and the stove in winter, in soil composed of coarse leaf mould and turfy loam. It was imported by Mr. Buist.

EPACRIS CARMTONIENSIS. New varieties of this charming tribe appear yearly; our present kind does not differ greatly from others in cultivation. It is in the way of *E. impressa*, but the scarlet in that is *vermilion* in this It does well in fresh turfy loam not "well-rotted," and is kept in the greenhouse the whole season. Also imported by Mr. Buist. T. M.

CULTURE OF PINEAPPLES.

The culture of Pineapples under glass does not seem ever to have attracted much attention with us. I see no reason why a small house might not be devoted for this purpose. It is true, that at certain seasons Pineapples are hawked about the streets and can be bought for a mere trifle; but such fruit is no more like what can be produced artificially than a fox grape is like a Muscat. All American travellers in Europe agree in their opinion that no fruit in Europe excels in flavor the same productions here, except the Pineapple. Why should they have better Pineapples than we? The fruit brought here and sold by the ton is very far from being what it really is when allowed to mature properly on the plants, as they are cut while yet green, in order to insure their transportation. I propose drawing attention to the subject, feeling confident that if any one *tries* to cultivate them, they will soon raise them to greater perfection than can be done in any part of Europe.

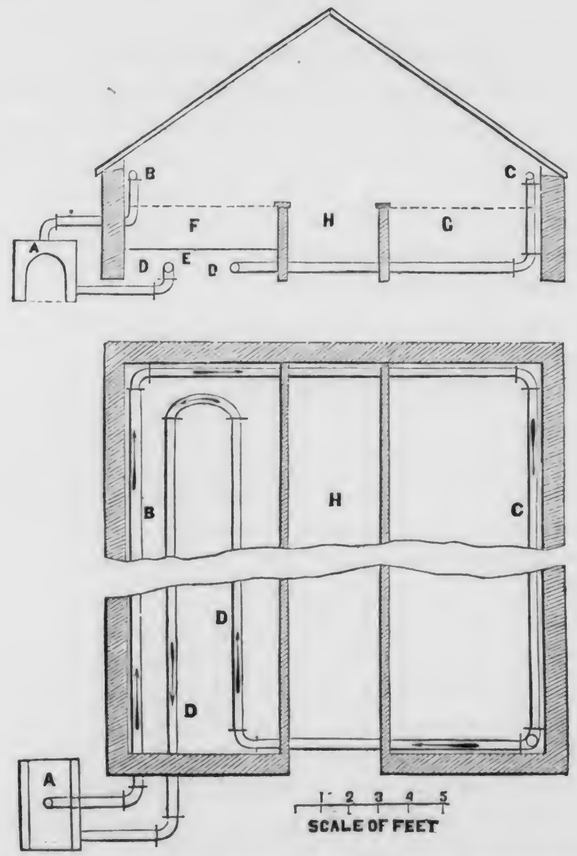
Lengthened treatises have been written on the culture of this fruit, describing the various systems of propagating, potting, plunging in hot beds of tan bark, manure and leaves, removing from propagating to succession, from that to the fruiting house, &c., giving ample directions for maintaining heat to the roots, watering overhead, and so on, bringing forward such an array of trouble and expense that it might well be concluded as "paying too dear for the whistle." Of late years much improvement has attended their culture; prepared beds of soil, heated by means of hot water pipes, have taken the place of pots, plunged in fermenting substances; and altogether their management is so simplified that any one devoting a little attention to the matter cannot fail in the production of this "king of fruits."

The following rough sketch will convey a general idea of the arrangements necessary for their growth:

A. Boiler,
B. Flow pipe for top heat,
C. Return do do
D. Bottom heat pipes,
E. Rough gravel about 6 in. in thickness over pipes,
F. Bed soil for plants,
G. do for young do
H. Pathway.

The bed F is devoted to fruiting plants; bed G, which has no bottom heat, is for raising young plants, so that whenever a vacancy occurs in F, the best plant in G is carefully removed and set in its place. What is not occupied with young suckers will be available for growing tomatoes, beans, rhubarb, &c., in the winter season. A winter vegetable house constructed on this plan, should form a prominent feature in every extensive garden. Strawberries in pots could also be raised in great perfection in such a house.

The soil for Pineapples should consist of a free loam, half-rotted sods, mixed with small charcoal to let in air to the roots, will suit them well. A depth of soil from 14 to 16 inches will be quite sufficient. With regard to temperature, a minimum of 50° in winter, and a maximum of 100° in summer may be rated. It is not desirable to allow the temperature to fall much below 50° during winter nights; the bottom heat will regulate itself, fluctuating from



65 to 85 or 90°, according to the state of atmospheric temperature. Watering must be carefully attended to; a liberal supply will be requisite during active growth in summer, but more sparingly applied in winter. Slight shading over the glass may also be found necessary during hot sunshine, to counteract the drying effects of the sun on the glass. My present object is simply to draw the attention of amateurs in fruit culture to the subject, as it is astonishing that a fruit of such rare excellence and highly interesting and easy

cultivation should remain so long neglected. A house of Pineapples would require less care and no more cost than a greenhouse; in their utility there is no comparison. Young plants would require to be imported, as there are none kept for sale in any nursery here. Their importation would be attended with no risk, as they will keep for months. The best sorts are Black Jamaica, Enville, Cayenne and Queen. W.

ON THE BIGNONIA VENUSTA.

BY JAMES SIMPSON, OF RUFFORD-HOUSE, NEAR NEWPORT.

BIGNONIA VENUSTA.—This very beautiful flowering hot-house climber well merits a place in every stove; scarcely any flower can equal its beauty and comeliness when in bloom; and those of the readers hereof who have not seen it growing, but have beheld its clusters of flowers in the shops of the central avenue of Covent-garden during autumn, winter, and spring, can confirm this testimony of its merits.

It is easy of cultivation, and if allowed to extend its roots in a bark pit, or in a border that derives warmth from some source, it grows *vigorously*, and will bloom in profusion, its charming, long, tube-shaped blossoms, borne in pendant clusters of from six to a dozen in each, are strikingly handsome. I have a plant growing in the corner of a bark pit, in a wooden case, with holes at the sides, out of which the roots push, and the branches are trained to a wire framework which is upon the front wall of the pit, the entire length of the house, and from October to April it blooms beautifully. I find it blooms better when trained crossways of the house than when *up the rafters*. I cut in the shoots after they have done blooming, so as to leave each about six inches long, give the plant rest by withholding an over supply of water, and remove the bark from the side of the case, about two-thirds its depth, sliding down another piece of wood in front of the case, which leaves a space of an inch, and keeps the roots from being heated by the bark; but early in August I remove it, water freely, and push the bark to the case; the plant soon pushes, and giving it manure water every fourth watering of the soil causes it to grow vigorously and bloom in profusion. The flowers are of a handsome yellow-buff color.

It is easily increased by cuttings of the young shoots when about five inches long, inserting them in equal parts of silver sand and loam, and plunging the pot where it will have a gentle heat.

I have seen plants flourish admirably when grown in a bed of soil in the stove, where the roots had a small degree of warmth. Also grown in a large pot, and trained *round* a pyramidal-shaped wire frame, the pot being placed upon a wooden trellis which was on a warm flue. One plant I recently saw that had been planted in a border in a stove but three years, which, being regularly trained, covered a space of 600 superficial feet against the trellis of a back wall, and was literally laden with its clusters of flowers. It ought to be grown in every stove, warm conservatory, or greenhouse. It can be procured, too, at a trifling cost.—*Lon. Flor. Cabinet.*

A JOB WHICH DON'T PAY.

Moving large trees from the woods on the frozen ball system in the winter season is very prevalent in this part of the country, and I believe in many other places; for I have often read long stories about the successful operations of this kind, but we seldom hear anything of their future success.

A great many people have not patience to wait until a tree grows, but must have full grown ones planted at once to produce immediate effect. This mode speaks for itself, as can be seen wherever it has been tried.

I think that unsuccessful operations are about as instructive as successful ones, the one tells what will do and the other what won't. With regard to the frozen ball system of moving large trees from the woods, I have had some experience, and like many others found no difficulty in planting, but the rub was to make them grow.

Three years ago I brought from the woods a great number of trees of various sorts, and for one that has flourished nine have died; at the same time I procured from a nursery a few small Elm trees hardly strong enough for walking sticks, which were planted in the same situation; to be sure they were not such conspicuous objects at the first start, but now they are nice, handsome trees, while those from the woods have nearly all disappeared.

Having so many failures I thought I must have mismanaged the job in some way, but in paying my neighbors a visit, I found some five or six of them in the same predicament; their gounds were excellent examples of the impropriety of planting large trees. There appeared to be considerable diversity in the way of planting, but as far as success was concerned all seemed to be about on a par. Some are planted just as they came from the woods with the head entire; to save them from being blown down by high winds, three pegs are driven into the ground in a triangular position to each of which is attached a rope the other end of which is tied around the stem of the tree about half way up. These ropes are often made of straw, which is rather a picturesque feature in a pleasure ground. Another mode is to

shorten in all the branches one-half, and a few stones are laid over the roots to keep the tree from being blown down, but are never used in sufficient quantity to be of any service; and others again to make a fancy job of it, cut the whole head off, leaving twelve or fifteen feet of bare stem, which renders them more like poles for training running roses on than like ornamental trees.

Forest trees always extend their roots to a great distance, and the fibres are at the extremities; when they are dug up these roots are generally cut off three or four feet from the stem, leaving the best part in the ground — how then could it be expected that such trees would grow? The roots of hard-wooded trees are not so ready to throw out young fibres when cut as the roots of apple trees. This mode of planting large trees for immediate effect is worse than useless—it is nothing but killing time and spending money for neither end nor purpose. The only thing which will give real satisfaction and produce the desired effect, is to plant young trees with fresh fibrous roots, and they will very soon grow to be large. There are few nurseries of any note which do not contain almost every variety of tree, so that it is a very easy matter to obtain them.

I am glad to say that at least one of my neighbors has had his eyes opened among the big trees. Last winter he moved from the woods a great number, and some at a great expense; the situation was a very dry one, and the early part of last summer being hot and dry in this section of the country, they turned out a total failure. Now he is planting trees of small dimensions and of nursery growth, which will in a very few years produce the result aimed at; besides which it is always more pleasing to look on a small healthy tree, than on a large one in a languishing condition.

I do not wish to be understood to include all kinds of trees, and under every circumstance and situation; what I have been condemning is the inexpediency of employing large trees from the woods.

ETNA.

Near Pittsburg Pa., Jany. 1854.

We have received from the editor, Wm. S. King, Esq., of Boston, Mass., the third and fourth numbers of the *Journal of the United States Agricultural Society*. It contains various and valuable articles, original and selected, on agriculture, cattle raising, horse breeding, fruit growing, and other subjects of interest to the farmer. Among the original contributors we notice the names of Messrs. Vail, Haldeman, Brinckle, T. W. Harris, Kennicott, B. Munn, and others. It has also a list of the agricultural and Horticultural papers in the United States.

CALENDAR OF OPERATIONS.

FRUIT.

Pruning, should be brought to conclusion at the earliest convenience. It is still a common practice to defer this operation until early spring, although it is generally conceded that the sooner after the fall of the leaves it is done, the better; various reasons might be given for this opinion. The principal one is that the sap accumulated in the tree during winter is economised. Late spring pruning is sometimes resorted to, as a means of weakening trees of very strong growths, but summer pruning will have a more decided effect where this object is in view. Many old peach trees flower profusely and set a heavy crop of fruit which drops before coming to maturity, and is quickly followed by the death of the tree itself. This might be prevented by thining the old branches, and pruning the strongest last year's wood rather close down, diminishing the finest buds, and favoring wood growth. Old trees of any description that have become crowded in the centre, will be much improved by judicious thinning, and all moss and loose bark should be cleared off the stem. If infected by scall, they should be washed over with a weak solution of potash in wate. It is a good practice to wash the bark of trees with whale oil, or even common soap and water, destroying insects and their eggs, and cleaning off all extraneous matter.

Ground intended for planting should be undergoing thorough preparation as soon as practicable. Next to trenching with the spade, the subsoil plough is the most efficient implement that can be used. Either the one or the other is indispensable in most soils. It is no use to dig holes in the subsoil, unless it is loosened all over as deep as the bottom of the holes, otherwise they will become receptacles for water. It is cheapest in the end to give every care and attention both in the preparation of the ground and planting the trees. A compost of leaf mould from the woods, rotted sod, and decayed manure in equal quantities, should be got in readiness for planting. This will give the young roots a good start, and establish the plant at once, instead of lingering on a miserable existence for two or three years as often occurs with trees stuck down in a careless manner.

STRAWBERRIES, in pots will require more water and a situation near the light. They should receive frequent waterings overhead, in order to keep clear of red spider, an insiduous enemy, difficult to exterminate when once in possession. Beware of too high temperature, especially at night; 45° will not be too low, and from 65° to 70° in bright weather. When the flowers expand, see that a sufficient number of staminates are placed at

regular distances among the pistillate plants, and endeavor to have a gentle breeze blow over them occasionally, the better to disperse the pollen. Staminate varieties are considered most suitable for forcing.

PEACHES, CHERRIES, &c., in pots should now be gently excited. A vinery started about this time is a very suitable place for bringing forward the above fruits in pots. A small house devoted to this purpose, with graperies up the rafters. Peaches, Nectarines, Plums, Cherries, &c., in pots and boxes on the floor, with a shelf on the back wall near the glass for Strawberries, would form a very appropriate winter amusement for the fruit amateur. There is less difficulty in managing a house of this kind than is generally supposed. The greatest error is being in too great a hurry, keeping up too much heat at the tops and too much water at the roots, causing all flower buds to be abortive. Syringe occasionally with warm water, and keep the floor and paths damp. There is great loss of moisture where much fire-heat is applied, and its extraction from the air occasions many failures in the culture of exotics.

GRAPEVINE BORDERS, to be planted in April, should be in course of preparation; so much has already been said on this subject, that further allusion to it seems superlative, but it requires to be "kept before the people," that ordinary soil, well trenched, drained, and manured with common yard manure, will grow them to great perfection, so that any one that can command these conditions need not be deterred from erecting graperies because they cannot procure bone dust, oyster shells, leather parings, woolen rags, &c. &c., which, although useful when properly applied, are by no means to be considered indispensable in the permanent formation of a soil, capable of producing grapes in the greatest perfection. In the many instances on record of long-lived, healthy, fruitful vines, no such ingredients have ever been applied to the well drained, comparatively poor soil in which they are growing.

S. B.

FLOWER GARDEN.—In our State this month is usually rather open, and will afford many opportunities for getting our spring work ahead—sometimes Hyacinths and Tulips come to hand too late to be planted out in the fall. The earliest opportunity should be taken to attend to them, as well as to Crocus, narcissus, and other hardy bulbs. Those planted in the fall will begin to appear at the surface, and should be slightly protected by a thin layer of ashes or half rotten leaves. The planting of Trees, Shrubs, Roses, &c., should be forwarded whenever the ground becomes somewhat dried—no advantage is gained by operating in wet, clammy soil; whatever pruning remains unfinished should be deferred, and all things tied up and got in readiness for the spring's return. Towards the end of the month, when all

danger of hard frost is over, the lawn will be greatly benefitted, by the application of a heavy roller over it; it makes the soil firm after the upheaving it received from the frost; and sets the loosened roots of the grass firmly in the soil. Moles are apt to be extremely troublesome to lawns at this period, and a little labor bestowed on trapping them is well spent. There are many kinds of traps of recent invention. For lawns the old clasping spring trap is as good as any. The ground disturbed by moles, should be rolled over every morning, which will afford an opportunity of noticing where they are engaged at work. Herbaceous plants, if they have stood several years in one spot, will do better if taken up, divided, and replanted; and Annuals, of the hardy kinds, if desired to be very fine, should be sown as early in the season as possible. The Pansy, and Belgian Daisy thrive much better by being planted out early in the spring, than when grown in houses, the latter most beautiful tribe, nearly failed in cultivation the past year, solely through being too much petted, in pots and houses. Where they are grown in pots, I would recommend them to be kept in the coolest possible situation; and when the warm weather sets in, shade them from hot suns, and preserve them in frames from excessive drought. Hedges around flower gardens as enclosures, are rapidly taking the place of fences. This is a desirable improvement. Where strength and protection are required, Osage Orange has the pre-eminence; where ornament, or appearance of division lines is more an object, the Buckthorn. Beech, Hornbeam, or Privet may be employed; for Evergreen Hedges the Chinese arbor vitæ, is the handsomest; though the American is lastingly so—the Hemlock Spruce makes a very graceful looking hedge, and sometimes the Juniper is employed, but in the last branches so frequently die out as to render it very objectionable under any but the most favorable circumstances. In all cases much of the value and beauty of a hedge will depend on the way it is managed in infancy. They ought in all cases to get a good winter's pruning, and for the first few years kept pruned "pretty well down," in order to render the plants bushy from the ground.

GREENHOUSE.—The Camellia will be the chief attraction here just now, as they are going out of flower, and previously to starting for growth, those that require it should be repotted. This operation should not be effected unless the plant makes small, meagre looking wood. Too much "pottering" is as bad as neglect. The best soil—or as there are many opinions—a good one is composed of coarse, turfy loam, with perhaps a fourth of well decayed leaf mould, and the same quantity of coarse sand; of course the "pots to be well drained." When Camellias start into growth, they require a large supply of moisture, both to the atmosphere and the roots. Pelargoniums, Cinerarias, Fuchsias, Calceolarias, &c., should have their last shift before bloom-

ing by the end of the month—though some of these do better in special kinds of soil, they will all do pretty well in a coarse loam, with perhaps a third of half dried, half decayed stable manure, and the same proportion of sharp sand. The day is gone by for the apothecary like prescriptions formerly given for the soils of various plants. In the management of the Pelargoniums I have found it of advantage not to stop the shoots too often. If we let them grow a length of several leaves first, and apply the knife instead of the "finger and thumb," the young shoots which follow are more vigorous, and generally branch out themselves afterwards beautifully, without further aid. The Dahlia will require attention by the end of the month—where but a few choice varieties are kept on hand, a good way to start them is to pot them each in separate pots, previously cutting off the extremities of the tubers. In a temperature of 55° they will soon sprout. The lovers of Tuberoses, may have them in flower two months before they can be had out of doors, by potting a few at this time separately in six pots, keeping them in the warmest part of the greenhouse. Before the attention is much occupied out of doors, the striking off of cuttings of winter flowering plants may be forwarded. Cuttings of young shoots at this season of the year strike very readily, and many things which in the fall can be made to root but with difficulty, can now be struck with ease—a loose, sandy soil, a close atmosphere to prevent great evaporation from the cuttings, and a temperature equal to, or slightly above what the cuttings have been accustomed to, is all that is required.

The Hot-house, or Stove; should now be gay with Æschynanthus, Centradenias, Pentas, Begonias, Brunfelsias, and so on, constituting this department the most interesting feature of a first rate garden at this season of the year. As any of them go out of flower, place them in the driest, and lighest part of the house to get their wood ripened as well as possible, when they may be shortened in, and pruned so as to make them push out shoots where they are required to constitute a handsome specimen; a few weeks after which they will require dis-rooting a little, placing in smaller pots, and thus be in readiness to go ahead again for another season, in reasonable bounds. A few Achimenes, and Gloxinias, may be repotted and kept slightly moist so as to get them in flower by May or June; but as the main stock of these are expected to be in flower about July or August, the greatest portion must be held over yet awhile.

Vegetable Garden.—Peas and potatoes are the two first crops I attend to; the latter can seldom be entrusted to the open ground any time this month, but the former often can. Whenever I can get the ground dry enough, I find great advantage from planting peas early. Where a frame or slight hotbed can be commanded, the potato may be planted as soon in the month as convenient; a few radishes may be thinly sown over them; they will be 'off' before they interfere with the potatoes. I also sow a few early Horn carrot under the protection of a frame at this time. Tomatoes, egg plants, peppers, and so on, may be sown about the end of the month, in a moderately warm place, so as to have them advanced a little for planting out in May. If the weather is fine I open at the end of the month; a great deal may be done by way of preparing the ground for spring work, and in some cases, the hardier kinds of vegetables, as parsnips, onions, salsify, spinach, parsley and cabbage, may be sown or planted. T. J.

THE STRAWBERRY QUESTION.

New Brighton, Staten Island,
January 24, 1854.

Mr. Hanson—As I do not wish to occupy your valuable pages with anything but what is of service, allow me briefly to refer your correspondent, Walter Elder, to Lindley's Theory of Horticulture; and likewise, if he can get at them, to read over the experiments of Mr. Knight, which are to be found published in the London Horticultural Society's transactions. He will there find all that we have advanced fully corroborated by the highest authority, and "learn something to his advantage." He is quite mistaken about his so named "trio" of "young revolutionists" being all young men. There is one at least, over whose head has shone the sun of more than forty summers, and who has made more use of his observing faculties than Mr. Elder appears to have done, if we are to judge by his batch of absurdities. He is perhaps aware that there is only one step between the sublime and the ridiculous; and I am sorry for his own credit, that in attempting the former he has overstept the narrow boundary, and only produced the latter.

Respectfully yours, Wm. Chorlton.

For the Florist and Horticultural Journal.

Flushing, Jan'y 25, 1854.

After perusing, in your January number, the commentary on sexual immutability, by Walter Elder, which is one of the most lucid and comprehensive ever penned by man, I was most forcibly struck by the first sentence of your response, when you say "We really flattered ourselves that the Strawberry question was settled." Indeed! And we on our part say, that we

really had hoped that those who attempt to outrage the laws of nature, would, ere this, have favored us with *a few facts*. But as *facts* are so scanty on that side of the question, and as books are being recommended, we would suggest the study of the "Book of Nature," as the safest guide to truth. So much by way of passing remark. It is not my object to enter into any discussion now, but only *to ask for the right of such discussion*. I have noticed that the views of Mr. Meehan, and of every other writer favorable to sexual mutation, have been anxiously inserted in the FLORIST, whether original or extracted from other sources; and I regret to say that my complete refutation of every position taken by Mr. Meehan, published in the October number of the Farm Journal, has not, in whole or in part, been allowed to see the light on the pages of the FLORIST. You have, it is true, at p. 327 of your November number, referred to it as written "in very bad taste;" further remarking that "those who are in the wrong always make the noise;" and that "there has not been anything in the way of argument on the side of the unchangeable Cincinnati theorists—all is assertion, denial, and on the part of Mr. Prince, abuse of Mr. Meehan."

Now, sir, I take issue on your own words; and since you have thought proper to attack my article, I claim a hearing, and deny your assumed right to condemn me unheard to your readers. I ask, therefore, the insertion of my response to Mr. Meehan in your paper as an act of plain justice; and at the same time I take it for granted, that under your tuition your readers have become sufficiently intelligent to form correct opinions for themselves, without any forestalled promptings. And in order that you may not be taxed with expense, I will, immediately on its insertion, transmit you $5 (or more) to pay the compositor.

When you shall have done me this act of civility and justice, ***I solicit as a favor***, that you, and every one who agrees with you in opinion, will attack every position I have taken, and bring forward *all facts that can be proved*. Sound the tocsin throughout the Union, calling on all your believers to rally their forces in the attack; and I especially urge you to solicit the aid of that strong band you speak of at p. 30 of your January number, where you say you can command "the opinions of men as old as any of them"—(referring to Longworth, Elder, & Co.) "men who are celebrated botanists, directly denying the truth of their theory." I will agree to remain silent for three months, or long enough for *all fictions*, as well as facts, to be brought forth on your side of the question; and all I ask afterwards is the privilege of a final reply to each and every position that may be advanced. Then let the public decide between us.

Mr. Hanson failed to notice the impertinent and *vulgar* language used by Mr. Meehan in some parts of his articles.

My statement about Meehan's using information that he *obtained from Dr. Darlington in conversation, &c.*, from which he composed his article to Boston, I can show to be the fact—and all wriggling about that I will put an end to. Yours, truly,

WM. R. PRINCE.

CINCINNATI, Jan. 20, 1854.

Mr. HANSON:—Mr. Meehan's first declaration that he could by a change of heat and exposure make a pistillate plant bring out some of the stamens, I was not prepared to say was impossible, for I have never seen a pistillate blossom that had not defective stamens. But I did believe he erred, for I believed he had a mixture of hermaphrodite plants with his pistillates. But when from the runners of a pure pistillate he produced an equal portion of staminate and pistillate plants, I deemed it an impossibility. For twenty years I kept a bed of pure pistillate Hudsons, to make new beds from, separate from all others, and never had a single fruit, or a runner to change its character. But, Mr. Meehan is now left in the back ground, so far, that he will not venture to sustain those who come to the rescue. A brother editor of yours, had all his beds of Hovey's pistillate change their sexual character. A correspondent of your journal has his beds change their sexual character daily, from greater or less heat in the weather, and greater or less moisture. Your doctrine is that a "pistillate plant is a monstrosity, and will labor in heat and cold, wet and dry weather to produce perfect blossoms." My doctrine is, for I know it from a life of experience, that in their natural state, in our fields and prairies. pure staminates and pistillates abound; and that hermaphrodites are scarce. That when I have raised thousands of plants from seed, nearly all were pure pistillates or staminates. I prefer facts and years of experience, vouched for by an illiterate market woman, to the opinions of the botanists that you recommend me read. You might have included the great Linnæus in your list. It is true that Mr. Elder is down on you rough-shod in your present number. He is I presume a Quaker, and bound to speak plain. I regret that your Christian feelings did not enable you to bear his strong arguments with patience. That in the moment of excitement you should even have pounced down rough-shod on me, I bear with patience, for I know that the hour of your destiny is at hand, when you will change your opinions, and acknowledge your error. Till then all that I ask of you is, that you will publish an article which you will find in Buchanan's Treatise on the grape, on the strawberry, from as able a botanist as any of those you refer to, and who has for years not only read these authors of yours, but devoted his attention to the cultivation of the plant, and its sexual character, whether

cultivation will change its character, and also whether the runners will vary from the parent. The person to whom I allude is Professor Huntsman of Flushing, L. I. Yours, with regard. N. LONGWORTH.

(From Downing's Horticulturist.)

TWO EXPERIMENTS MADE TO TEST MR. LONGWORTH'S STRAWBERRY THEORY.

Taking Hovey's Seedling as a subject, I procured a bell-glass, and placed it over an entire plant which had not bloomed. The flowers expanded well under the glass, but did not produce one berry. The plant was frequently agitated to put the pollen in motion, if there was any.

I also introduced under a glass some blossom buds before they had blown. These, as they successively expanded, showed no signs of swelling. I impregnated, at different times, two of the blossoms by hand, applying the pollen from another plant with a camel's hair pencil. These two set their fruit perfectly. The pistils of the other blossoms soon turned to a dark color. These experiments were made at the north side of a picket fence, where the plants were screened from the full effects of the sun, otherwise the heat under the glasses would have been too great.

These experiments prove to my mind very conclusively, that Hovey's Seedling will not bear any fruit unless impregnated by some staminate variety. And the same may be said of other varieties in which the stamens are *obsolete*. I have had some plants of the Hudson Bay for three years, in a position where they cannot very easily be impregnated by other kinds, during which time they have not borne one berry, while other plants of the same variety, exposed, have been productive. A difference in the formation of the flowers on different plants is not confined to cultivated kinds, but may be seen in those growing wild in the fields, the *pistillate* plants of which I have often examined with a magnifying glass, to see if I could discover any pollen, but have never been able to find it; I am forced, therefore, to believe that *pistillate* plants, both wild and cultivated, are absolutely devoid of pollen, and cannot, therefore, produce any fruit except when impregnated by others.

I am also convinced, from observation and theory, that one kind will never change to the other by off-sets. The runner bearing the same relation to the plant producing it as a tree grown from a bud does to the tree from which it was taken. It may, then, be asked, how does it happen that there are *pistillate* and *staminate* plants of the same variety? *I answer, it is not the fact*, unless they have sprung from seed, or the plants have been taken from the filds in a wild state.

That *pistillate* plants are surer and better bearers than *staminate* plants, is, I think, generally true (provided, of course, that they are impregnated.) And it would seem reasonable to infer that when but one of the sexual organs is complete, the other will have more strength. Plants, therefore, that are perfect in both organs, require a higher state of cultivation. There is, however, a wide difference in the productiveness of different kinds, that are perfect in both organs, some being much more liable to *blast* than others.

G. W. HUNTSMAN.

Flushing, L. I., July 14, 1846.

MR. EDITOR:—You say that you "would like to hear my opinion of a very frequent variation of petals taking the place of the anthers of the stamens in some varieties of Fuchsias." The variations to which I presume you allude are, a peculiarity in some varieties of different genera, the stamens form the footstalk of forced petals with the anthers imbedded in the centre. Or, in other words, these forced petals form a garnishment or mantle to the stamens and anthers. Such is the case with some varieties of Fuchsia; and the double red Althæa has the same peculiarity, but yet its sex is unchanged, as it bears seeds with such malformations of its organs; but the Fuchsias do not, for the reason that they are produced by excessive culture, kept up by excessive culture, and are so succulent by excessive culture and the confined and humid atmosphere of a greenhouse, that one would more readily take them for herbaceous than ligneous plants, if he did not know the genus to which they belonged; and in this state they cannot bear seeds, but are monsters or mules with respect to reproduction. And does any body assert that they have changed sex, because they are rendered abortive by such treatment, and having a tendency to such peculiarities. It is in the sex that I say stability rests, and although man can destroy, he has not the power to amend the laws of nature in this particular. You advise me to study certain authors, I used to consult Smith and Lee when I was a lad; they were then considered good authority, but now I suppose you class them among the "old Fogies." When the great Patrick Henry was in the prime of life, some friend of his suggested to him the propriety of studying certain authors, to which he made answer, "books are very useful for instructing the young, and I have been much benefitted by them, but now I must gather knowledge from experience, and read men and things—the world is my book." To which I add, Amen. Respectfully.

Philada., Jan. 16, 1854. WALTER ELDER.

First, for Mr. Prince. He pronounces Mr. Elder's "commentary on sexual immutability," "one of the most lucid and comprehensive ever penned

by man." We have no doubt that all our readers considered it quite as clear as the "quality of mercy" mentioned by Shakspeare. Mr. Prince also states that facts are scarce on our side. The facts we have shown are, Mr. Meehan's plants shown at the Pennsylvania Horticultural Society, of Hovey's Seedlings with staminate flowers. No one dare deny this, for the plants were staged there, and one of the two or three (perhaps not so many) members of that society, who believe Mr. Longworth's theory, I mean Dr. Brinckle, said that he did not examine the plants, as he was fully satisfied that Mr. Meehan was mistaken.

In the next place, Mr. Prince has noticed that the views of Mr. Meehan, and of every other writer favorable to mutation, have been anxiously inserted in the FLORIST, whether original or extracted from other sources; and he regrets to say that his complete refutation of every position taken by Mr. Meehan, published in the October number of the Farm Journal, has not been allowed to see the light on the pages of the FLORIST. It is false—not true in fact, that every thing favoring Mr. Meehan's views has been published to the exclusion of the Cincinnati side of the question; for Mr. Longworth and Mr. Elder have been heard as largely as any other. As to Mr. Prince's long communication in the Farm Journal, I have no doubt that the editors were very sorry to encumber pages with it which might have been occupied with much more valuable matter: and I submit to any one whether everything Mr. Prince has written be not in bad taste; and also, whether anything worthy of the attention of either side of the question. As to reprinting the article in question, it shall not be done in the FLORIST, for it is not worth the room; but if Mr. Prince chooses to print it, a copy shall be sent to every subscriber of the FLORIST. As to fact or fictions, we have the fact shown by Mr. Meehan, mentioned above; the fact of Mr. Downing's staminate Hovey's; of Mr. Wm. Saunders' pistillate's bearing fruit, in Baltimore; the fact of the changing beds of Mr. Wight, of the Prairie Farmer; that of Mr. Chorlton's, in his beds at New Brighton—and the fact of Nature redeeming herself from abortion, which strawberry plants with but one sexual organ are.

Further: Mr. Prince's statement about Meehan's using informrtion obtained from Dr. Darlington in conversation, &c., "which he can show to be the fact," is almost astounding. That Mr. Prince is willing to have printed such an assertion, in the teeth of the denial of Mr. Meehan and of the editor of the Farm Journal, tells very little for the regard he has for public opinion; but, as he says of his arguments, let the public decide between his truthfulness and that of Messrs. Darlington and Meehan. We are sorry to have to be so pointed in our remarks, but we consider that Mr. Prince's remarks call for decided language. We shall have nothing more of the kind appearing

in our pages if we can help it; and we doubt if he can obtain admission for his articles to any other horticultural paper.

In answer to what Mr. Longworth has to urge, we think that we have said before that the size of the crop is increased by planting staminates among the pistillates; this is admitted on all hands. But that it is impossible for pistillates to have some of their flowers hermaphrodite, has been contradicted by the facts mentioned above, and moreover is contrary to the known laws of nature. We all know that perfect fruit, that is the seed, cannot be produced in any plant without the fertilizing influence of pollen; but will any one persist in saying that pollen is necessary to cause the swelling of the flower stalks of the strawberry which forms what we generally call the fruit?* We are not such Millerites as to believe yet that the time of our opinions has come, for we have not yet seen anything to make us retract anything we have advanced. It is unfortunate, certainly, for any one to be obliged to change his opinion on any subject, but one cannot always be right; (and it is therefore best to be ready to take a different tack when the wind of knowledge shifts to a different quarter;) and to those who find themselves wrong, we recommend the advice of Emerson — "A foolish consistency is the hobgoblin of little minds; if you have ought to say, speak what to-day thinks in words as cannon balls, and to-morrow speak what the morrow thinks, in hard words again, even if it contradicts what had been said before." "Consistency is a jewel," is a musty proverb, which most persons quote when asked to acknowledge themselves in error.

Mr. Elder evidently did not find much about the development of the parts in those worthies of the earlier days of science, Smith and Lee, whom he has studied to such advantage. It is always a bad sign when a person considers his education completed. We see a great many persons in the world who do not know enough to know how much there is to know. Patrick Henry was certainly a very good natural orator, but I don't think that he has increased his fame much by making such a speech as that. The monstrosity of the petal taking the place of the stigma in the Fuchsia has nothing to do with the change of sex, but is only an incompleteness of development from the leaf to the stigma. Any one who has read anything later than the works of Smith and Lee, knows that the sepal, petals, stamens and pistils are only modifications of the leaf; and in the case of the fuchsia mentioned, the change only got as far as the petal.

What Mr. Huntsman has to say, is all very true as to the crops; but nothing more can be said about pistillates not setting fruit, for it has been tried

* Schleiden. Poetry of the Vegetable World; translated by Arthur Henfrey: American edition, edited by Alphonso Wood, M.D., Cin. O. Moore, Anderson & Co., Cin. O.

and proven. He also says that it is not the fact that there can be pistillate and staminate plants of the same variety—which was disproved by Mr. Meehan's plants of McAvoy's Strawberry having two scapes from one root—one bearing pistillate and the other staminate blossoms. That fact can't be denied, for a plant was seen by the editor of the Farm Journal. Moreover, they were of the true kind, for the committee of which Dr. Brinckle is chairman, awarded a premium for fruit grown on these plants. The pistillates and staminates among the wild strawberries are no doubt frequent, but that is but an exception to the real character of the genus, which is monœcious. It is so considered by all botanists from Linnæus down, among whom are some perhaps equal to Prof. Huntsman.

But we must not occupy any more space; the Muses have come to the aid of the Cincinnatians. Lend them your ears!

A BRIEF REVIEW OF THE STRAWBERRY QUESTION.

When you "hoped your friends," Mr. Editor,
  Would "communicate the observations
That they had made on strawberry blooms,"
  You got mine with discretions.
Since then, dear sir, you've talked of me,
  As if I'd joined the strife;
I never intended such a thing,
  As true as I'm in life.

What was the cause of such great stir—
  Or what the strife about?
One exclaimed, discovery!
  Others expressed their doubt.
Now, what was that to you or me,
  If they should quarrel and fight?
It seem'd to me, you wished to know,
  Which side your friends thought right.

Was it knowledge for the cultivator?
  Did it teach him the better way
How to raise a greater crop,
  Or was it to lead him astray?
A MARESNEST in a strawberry bloom
  Has caused the whole dispute,
As skilful men of practical knowledge
  Could not all keep mute.

William R. Prince, in Farm Journal,
  With devouring demolition,
Came down upon discovery,
  Causing repentance and contrition.
Next, thro' our well-conducted Florist,
  A champion sallied forth,
The friend of all good cultivators,
  Great Nicholas P. Longworth!

The late lamented A. J. Downing,
  Made the 'assertion' once before;
Then confessed his error to a friend,
  And did repent it sore.

Who, then, cried out, "Great light was hid,
  Or buried under a bushel!"
Who, then, brought Botany to test,
  Or created such a bustle?

Now, on what does botany rest?
  Has it any foundations?
Or is it only a flirting dream—
  A fancy of variations?
Is it opposed to valid truths,
  By the laws of nature proved?
Them, down the gulf of Oblivion,
  Ingloriously it's moved.

Whenever Cohesion turns about
  And "pulls Newton's apple off the tree,"
Then stamens may become pistils,
  Or pistils the contrary.
Then what would be the use of science,
  With such variations botanical?
As changes would as frequently happen
  In theory philosophical.

I've seen "prominence" in a strawberry bloom,
  The same in hawthorn blossom;
I've seen the like in all fruit trees,
  And pondered it in my bosom.
When the case was new to me,
  It was not so to all;
Why should I've made a great ado
  About such trifles small?

Such prominence, I am positive.
  In what I here recite,
Can never make a pistillate bloom
  A full hermaphrodite.
Let all your plants prove themselves,
  (Keep them free of weeds,)
And those will be hermaphrodites
  Of themselves, that bear good seeds.

WALTER ELDER.

The "prominence" here alluded to, lies in the fact that all plants have some blooms larger than others; and as the sexual organs are large in equal proportions with calyx, corolla and pericarp, they are called prominent—but the sex still remains unchanged. W. E.

BALSAMINA LATIFOLIA ALBA.

If it cannot be said of this Balsam that it is one of the most beautiful plants which we possess, it certainly is one of the most useful, for it is perpetually in bloom, forms specimens of good size in a short time, and is so easily managed that even the most inexperienced grower could scarcely fail in its cultivation.

If afforded a gentle bottom heat, cuttings made of firm pieces of the wood emit roots freely; they should be planted in sandy soil, covered with a glass, placed in a shady situation, and not allowed to droop. When sufficiently rooted to bear handling, pot them singly in small pots, and replace them in a close moist warm situation, shading them from direct sunshine till they get established in their pots; then give air more freely and pinch out the tops in order to obtain a bushy plant. Shift into 6-inch pots, and get them strong well established plants in these before winter. To effect this the cuttings need not be put in earlier than June. The young plants should be placed near the glass in a house where the temperature may average about 50°, giving no more water to the soil than will keep the foliage in health. Towards March, or earlier if required, remove them to a warm house, placing them where they will receive all the light possible; and give a liberal shift, using good, rich, turfy loam, leaf-soil, and thoroughly decayed cow manure, in about equal proportions, well intermixed, adding sufficient sharp sand and lumpy pieces of charcoal to keep the compost open and porous, in order to ensure the free percolation of air and water through the mass. Peg down the shoots, and as they advance in growth stop the stronger ones, keeping the leading shoot tied up to a stake and regulating the others so as to obtain nice well-furnished pyramidal specimens. Give a free supply of water to the soil, and keep the atmosphere moist; syringe the plants over-head morning and evening, and if green-fly makes its appearance fumigate with tobacco. As the plants advance in growth, more pot room will soon be wanted, and the second shift should be into the flowering-pots, the size of which must be regulated by the size which it may be desired to have the specimens. With a light, warm, airy position the plants will make very rapid growth, and soon form large handsome specimens. Discontinue stopping a few weeks—say three—before the time you may wish to have your plant in bloom; and except pinching out the point of any shoot which may incline to so far outgrow the others as to spoil the form of the specimen, stopping should not be practised after the plants are considered large enough for flowering. By keeping them in a light, sufficiently airy position while in bloom, they will grow slowly, forming short-jointed wood, and retaining a compact bushy habit; and as a constant succession of blossom depends upon securing a regular development of healthy young wood, it is of importance

to provide for this, which will be best done by placing the specimens while in bloom where it will be convenient to regulate the admission of air, &c., according as the state af the plant may indicate.

With attention to the above remarks, a somewhat close part of the greenhouse will be found a very suitable position for those blooming during summer; but if it should be desirable to prolong their flowering into autumn they must be removed into an intermediate house, when cold damp weather occurs. Give a liberal supply of water at the root, and clear weak manure water may be given once or twice a week with advantage to such as are at all pot-bound.

I may add that it is useless to occupy space in winter with large plants of this Balsam, therefore attend to keeping up a stock of young ones, and throw old specimens to the rubbish heap after blooming.—*Alpha, in Gard. Chron.*

PENNSYLVANIA HORTICULTURAL SOCIETY.

The stated meeting of the Society was held January 17th, the President in the chair. The following awards were made:

Collection of twelve plants—for the best to Robert Buist; for second best to Thomas Meehan, gar. to C. Cope. Specimen plant—for the best to R. Buist; for second best to Thomas Meehan. Table design—for the best; Basket of cut flowers—for the best and second best to Thomas Meehan.

A special premium of one dollar was awarded to Isaac B. Baxter for fine specimens of Passe Colmar Pears.

Vegetables—for the best display by an amateur, to Thomas Meghran, gr. to W. H. Stewart, Torresdale; and special premiums of one dollar each for a dish of Mushrooms, and Cucumbers, Godfrey's Surprise, to do; and for Imperial Sion-house Cucumber to Wm. Thompson, gr. to John Tucker.

AD INTERIM FRUIT REPORT.

The Fruit Committee respectfully report that they have received, since the December ad interim report, specimens of the following varieties:

From Charles B. Ott, Pleasant Valley, Bucks county, Pa.—*The Water Apple*—represented to be a very productive variety. Size medium, 2½ inches long by 2⅝ broad; form oblong, inclining to conical; color red on the greater part of the surface, interspersed with one or more white spaces, and a number of green blotches, greenish-yellow about the crown and on the unexposed portion; stem ½ an inch long and 1-12th thick, inserted into a rather narrow, deep, acuminate cavity; calyx medium, closed, set in a moderately wide, plaited, sometimes shallow, occasionally deep basin; seed medium, brown, ovate, flesh greenish-white, fine texture, remarkably tender, juicy; flavor sprightly, with an agreeable aroma; quality "very good."

From Persifer F. Frazer, of this city, through J. J. Vanderkemp, Esq.—*Seed of the Salmon Berry*, from Bodega, California; and dried *Raspberries* from Sitka, in Russian America, near the 57th degree north latiude. More than a year ago we learned from a reliable quarter that a raspberry of a very large size and fine flavor had been found growing in California. Repeated

attempts were made by us to obtain the variety, without, however, succeeding in accomplishing our object. We were, therefore, highly gratified at the unexpected receipt, through Mr. Vanderkemp, not only of the seed of the California Raspberry, but also the dried berries of a variety from the island of Sitka, high up on the Pacific coast, and upwards of nine hundred miles north-west of the mouth of the Columbia river.

In an interesting letter to one of the committee, Mr. Frazer gives us the following information in regard to them:—"The dried Raspberries in the package marked 'Sitka,' were brought from the Russian colony of that name on the north-west coast of America, by my friend Mr. James C. Ward, of San Francisco. He procured them while on a visit there this last summer, and sent them to me with the hope that the plants might possibly be raised from them. I know nothing of them except that they are the raspberry of the place. The seeds in the other package are those of a large buff-colored Raspberry, known in the country as the *Salmon Berry*. I found it growing apparently wild, among nettles, at Bodega, a small seaport about fifty miles north-west from San Francisco. Bodega is the port of a tract of country which was (for a length of time previous to the taking possession of the country by the U. S.) in the occupation of the Russians, who leased it for the purpose of supplying their colonies with grain. The Raspberries were found on the shore of the harbor, under the projection of high cliffs, which sheltered them from the north-west winds. As they were in the immediate vicinity of the company's warehouses, it is very possible that they had been planted there by the Russians, though I could not perceive any traces of cultivation. They grow, if I recollect aright, on the talus of the cliffs, and so completely mixed in with high nettles that I found it very difficult to procure them. The plants were from five to six feet in height, and the berries of at least twice the volume of the Antwerp, and between a buff and a salmon color, with a very delicate flavor, which reminded me of that of our carnation cherries.—An attempt was made by Gen. Persifer F. Smith to send the cuttings home, but they died on the passage across the Isthmus of Panama. On speaking on the subject to Mrs. Dr. Rhea Barton, she gave me directions for having the seeds prepared, and requested that I would procure some for her. These directions were forwarded to my friend, Mr. Ward, and a few days since I received the packages which Mr. Vanderkemp placed in your hands. * * In case of success, I ask for some of the plants for Mrs. Barton, Gen. Smith, and Mr. Vanderkemp—the two former are absent from the city, and both desired me to procure the seed for them."

The berries from Sitka, though thoroughly dried, were quite large; we counted the seeds in two of them, and found sixty-eight in one, and seventy-two in the other.

The library committee reported the name of one member delinquent for fines.

The committee of finance reported that having examined the treasurer's statement, they found it correct, and that the investments were good and interest punctually paid.

A circular, addressed to the society by a committee of the Allegheny Co. Agricultural Society, was read, desiring the co-operation of the society in procuring the passage of an act by the legislature declaring the *stealing* of growing fruit, vegetables, grain, &c., *larceny*.

On motion, the subject was referred to a select committee of three with power to act.

The President announced that he had received from Commodore Perry, of the Japan Expedition, a small package of seeds and a letter, which was read purporting that the seeds were a present to the Society, and requesting that a portion of the products of each kind might be preserved, and if new and interesting the credit be given to the Expedition.

On motion, ordered that the thanks of the Society be tendered to Commodore Perry for the gift, and the seeds be referred to the Committee for the distribution of Seeds, &c.

Members Elected.—Dr. Morton Stille, Edmund Grundy, Robert Tyler, Edward Shippen, Edward P. Eastwick, and George Lazenby.

Objects Exhibited.

Plants.—By Robert Buist :—Ixora crocata, Camellia Mrs. Cope, Primula sinensis alb. plen,, Daphne indica rubra, Corræa turgida, C. speciosa, Tillandsia bractea rubra, Epacris Wattonii, E. miniata, E. Copei, Clivia nobilis, Erica rubra, Corræa speciosa, and a Seedling Primula.

By Thomas Meehan, gardener to C. Cope :—Centradenia floribunda, Primula sinensis purp. plen., Eranthemum semperflorens, E. pulchellum, Ixora incarnata, Camellia Margaret Grillon, C. Reine des Fleurs, Aloe variegata, Euphorbia jacquiniæflora, Brunsfelsia latifolia, Jasminum revolutum, Epidendrun ciliatum, and Cypripedium venustum. Also, a Table design and two baskets of cut flowers.

Fruit.—By Isaac B. Baxter :—Pears—Passe Colmar, B. D'Aremberg, and S. Germain.

Vegetables.—By Thomas Meghran, gardener to W. H. Stewart, Torresdale —A display, among which were Cucumbers, the Godfrey's Surprise, Mushrooms, Asparagus, and varieties of Lettuce.

By W. Thompson, gardener to John Tucker ;—Sion house Cucumbers.

By Thomas Meehan :—Asparagus.

ANNUAL MEETING.

The annual meeting of the Society was held on Tuesday, January 17th, 1854. Caleb Cope was called to the chair, and Nathaniel Knowles appointed secretary.

The object being stated by the chairman to be the election of officers, Thomas Clark and Charles Harmar were appointed tellers, who, after the balloting, reported that the following gentlemen had received the highest number of votes—whereupon the chairman announced that they were elected officers for the ensuing year:

President—General Robert Patterson.

Vice Presidents—James Dundas, Richard Price, W. D. Brinckle, M. D., Robert Cornelius.

Treasurer—John Thomas.

Corresponding Secretary—Thomas C. Percival.

Recording Secretary—Thomas P. James.

Professor of Entomology—Samuel S. Haldeman, A. M.

Professor of Botany—William Darlington, M. D.

Professor of Horticultural Chemistry—Robert Hare, M. D.

THE FLORIS
AND HORTICULTURAL JOUR

THE DIAMOND PEAR.

ARTIFICIAL FECUNDATION OF FLOWERS.

COLOR PLATE

COLOR PLATE
INTENTIONAL SECOND EXPOSURE

THE FLORIST
AND HORTICULTURAL JOURNAL.

THE READING PEAR.

Our plate this month is a drawing of a Pear, for which we are indebted to the kindness of Dr. Wm. D. Brinckle of this city, who received it from Mr. Chas. Kessler of Reading. It is a winter pear, just now in eating order. It has been described in the ad interim reports of the Pennsylvania Horticultural Society; and we have no doubt will prove a desirable acquisition.

ARTIFICIAL FECUNDATION OF FLOWERS.

BY PROF. CHARLES G. PAGE, M. D.

In the course of many thousand experiments in cross-fertilization, I have noticed some interesting phenomena which seemed to open up a new field of investigation and practice. In our rapid progress in the production of new varieties of flowers and fruits we see no terminus, and our enthusiasm kindles at the ever-widening circles pushing the limits farther and farther out, upon each new acquisition. But in our race for novelties let us have a care to the perfection of that which is old, and the advantages will proclaim themselves sooner or later in the production of that which is new. Certain it is, that there is at this time rather a tendency to innovate than to improve, and perhaps too much rivalry in the former and too little in the latter. These remarks are not intended to apply to the production of new flowers, nor are they intended to discourage the production of new fruits, but are designed chiefly to direct attention to the improvement of our established fruits, *pruning, disbudding, thinning out, ringing, girdling, bending down, cutting the roots, acupuncturation, caprification, seasonable waterings and manurings, and good culture in any way*, will give us large fruits and prize specimens; but I am led to believe from certain observations that the importance of fecundation in this connection has been overlooked, and that this may yet, (although at present very difficult,) become a studied branch of horticulture. To a certain extent the importance of fecundation has not been overlooked, and the economy of sexual distinctions has been as clearly recognized in the vegetable as in the animal kingdom, and between the two orders of organized life,

interesting analogies have been traced in respect to the reproductive functions. But there is something beyond the *reproductive* functions to be considered in regard to fruits, in order to be clearly understood as to the meaning of the term *fruit*. I mean broadly the *pericarp*, and by the *pericarp*, in reference to esculent fruits, I mean the part which is eaten with or without seeds. It is the part which envelopes, sustains, or is surrounded by the seeds; it is the edible pulp; in fine it is sarcocarp of the pericarp, and if botanical distinctions fail, we will leave it to the sense of taste to decide what fruit is. The laws of reproduction in the animal and vegitable kingdoms present some interesting analogies which I do not purpose now to trace out to the full extent.

Oviparous animals will deposit their eggs without fecundation, but eggs not fecundated will not hatch. There is no exception to this law for animals; in the lower orders, such as polypus and taenia, a piece of the animal will produce a new animal, as a cutting of a plant will produce a new plant. The seeds of plants correspond to the eggs of animals and are governed by the same general law of reproduction, viz, that fecundation is essential to reproduction. This law is relaxed, however, for some plants, such as the common fig, and others which bear fruit and rip en productive seed without fecundation, (at least by any recognized male organ) although for the most part fecundation is essential to productive seeds. It plays also another important part which my experiments serve to elucidate. For the sake of illustration I will select a particular flower upon which my observations have been most extensive; that flower is the *Petunia*, which offers great facilities for observations upon the sexual character and functions. It is well understood that in artificial cross-fertilization, in order to prevent self-fecundation we emasculate the flower from which we wish to obtain the seeds for new varieties; that is, we remove the anthers from that flower and at the proper time apply to the stigma the pollen from some other distinct flower. Now it happens that with many flowers the self-fecundation takes place before the flower opens, in consequence of the early formation of pollen. Such flowers planted together in beds will never naturally cross-fertilize, or produce new varieties and hence it is that nature seldom produces new varieties.* I have observed that with a

* There are several other reasons however why natural crosses are rare. By natural I mean plants in their native condition unassisted by culture. The provisions for self fecundation are so ample and perfect that there is but little opportunity left for natural or rather accidental crossing, even where interchangeable varieties or species exist together. The anthers in most flowers have position according to the position of the flower. In pendulous flowers the stamens are shorter than the pistil, so as to drop their pollen upon the stigma upon the slightest agitation; and in erect flowers the stamens are usually longer than the pistil for the same reason.

given variety of the *Petunia* the corolla will be more apt to expandbe fore the perfection of pollen when the plant receives the highest culture, so that the farther we digress from the normal condition of the plant the greater the facility of accidental production of new varieties. This we see proved in many instances, where after the production of one or two new varieties a whole flood of changes is poured in upon us in a short time. In nearly every class of the multiplying varieties of florist's flowers of the present day, no credit attaches to the originators of new varieties, except that of industry, patience and opportunity. Verbenas, geraniums, etc., are planted in patches, and seeds are collected and sown at a venture and the few out of hundreds are saved as the result of chance fertilization. The facility of self-production of new varieties after one digression I have seen beautifully exemplified in the Portulacca. We had for many years the crimson, the scarlet, the yellow and the white, all well pronounced varieties, which for several years stubbornly resisted the efforts to cross by artificial means.

Four years since I obtained a cross between the crimson and yellow, and got but one such plant from experiments upon several hundred flowers. It was a beautifully marked variety, bearing a yellow flower with crimson bands and stripes, and no sooner was this variety bedded with the normal kinds than varieties began to multiply without help. The barrier was broken down and nature ran wild, and without the interference of art, I now count from twenty to thirty varieties of *Portulacca*. The Petunia is less accomodating; promiscuous planting and hap-hazard collecting and sowing at a venture, has produced probably some hundreds of varieties, but not sufficiently pronounced to demand separate names. One reason is, that with the Petunia the pollen will often shed before the corolla opens and self impregnation excludes superfoetation from other flowers. In this case we must force open the flower and take off the anthers before the pollen sheds, and apply other pollen immediately, or wait until the germ is in the conceiving condition.* Petunias out of doors or in the open ground shed the pollen earlier than those under cover. Fortunately however I have several good varieties which expand the corolla long before the pollen opens, and the whole operation of fertilizing is reduced to the utmost simplicity. The anthers, five in number, are removed with small forceps and the pollen of other flowers applied to the stigma by means of a fine camel's hair brush, either immediately or whenever the pollen will adhere. With these prefatory remarks we come now to the chief point of this communication. When cross-fecundation has been effected, as soon as the corolla and style wither, the seed vessel is observed to swell more or less according

*It needs to be mentioned that experiments upon cross-fecundation should always if possible be conducted under cover.

to circumstances. Sometimes it is much larger and sometimes smaller than the seed vessel from self-impregnation.

From repeated observations and trials I have found that for a given kind of Petunia there are particular varieties that (if I may use the term) harmonize with it. After applying the pollen from different varieties to separate flowers of one plant, I have found great differences in the size and development of the seed vessels. Some swell to a very great size, and others do not attain the normal size, that is, the size which would be produced by self-fecundation. The very large seed vessels are generally constant results from the union of certain varieties. In fine, it seems that for a given variety, the size of its seed vessels is governed principally by the nature of the variety whence the fertilizing pollen is derived. It must be born in mind that the possibility of obtaining very large seed vessels at all depends upon the character of the seed bearing plant; for with some, especially the most improved varieties, such as *Enchantress* and *Prince of Wales*, the seed vessels rarely fill out and are generally very small. The Petunia very often bears double flowers, not double in the ordinary sense, but flowers of double size, containing two sets of organs, viz, two pistils, two germs, ten stamens, and ten lobes of the corolla to correspond. On fertilizing, these two flowers form separate sources, there is frequently a marked differenee in the size of the two seed vessels. We should naturally expect the best results from planting the seeds of the largest seed vessels, and in some respects it is so, but as a general rule the best *new varieties* are produced from the smaller sizes. It is well known that the higher cultivated flowers and fruits are not good seed bearers, and that their seeds are apt to produce degenerate kinds. Take the peach for instance. Seeds from the largest and best kinds, with the exception of some few kinds which are always in this region propagated from seed, rarely produce good peaches. When General Jackson was President of the United States, some friend presented him with a large basket of peaches, of extraordinary size and quality, probably the *cream* of some large orchard. Commodore Ap Catesby Jones, an enthusiast in horticulture, bespoke the seeds of those peaches for the purpose of planting them, and they were accordingly saved. He planted them, reared all the trees carefully, and when he came to test the fruit, it was all worthless and the trees were all ordered to be destroyed. I have had some similar experience, although on one occasion I raised fine fruit from the seed of a very large peach. I purchased the peach at a confectioner's in New York, for 18¾ cents, in the year 1840, and from it raised a fine large peach, which I call the three-fip peach. The tree is now in its prime. But to recur to the Petunia. If the largest seed vessels are not

the most productive of distinct varieties of flowers, what advantage shall we take of the fact? In flowers we seek varieties, and the more distinct the better. In fruits we seek just the condition we have noticed in the large size seed vessels, and although I have recited above a variety of modes of swelling fruits, I am induced to believe there is one mode beyond any other for this purpose, and that is, by proper cross-fertilizing. The swelling of the *Petunia* seed vessels is precisely similar to the swelling of the fruits, such as the strawberry, peach, melon, etc. Take a peach tree of good sized fruit and watch its development. We shall find a very marked difference in the fruit, as to size and flavor. Some very large, some very small, and the greater part intermediate.

The circumstances of culture, air, light, etc., seem to be the same for all, but what occasions here and there a monstrous fruit? I am inclined to attribute it to accidental cross-fertilization, and one of the *harmonizing* class or character just referred to. It seems to be the case with all our fruits, and where no artificial means have been resorted to for the purpose of swelling the fruit, among all the speculations as to the cause of it, *crossing* is never thought of. Take the strawberry patch. With apparently equal soil and culture here and there is a monstrous fruit, and often the plant bearing such fruit is set apart as a breeder, when behold! the progeny is no better than those of the original stock. Culture in this and every case will do much, but proper fecundation may do as much more. Take the melon patch! You notice somewhere a large melon, and on tasting it you are disappointed to find the mixed flavor of a cucumber with a nutmeg, cantelope or musk melon; again, you see a round, smooth looking watermelon with a nipple or a half formed neck, you taste it and it is as bitter as a gourd. The case of the melons supports the views I have put forth. The change in the character of the fruit, both as to size and flavor was not last years' doings; it was not the production of a new variety by cross-fertilization shewing itself in the seeds. It was the immediate effect of fecundation upon the fruit, for the same vine which bore the fruit with the gourd taste, will bear also a good watermelon. Every skilful gardener knows the necessity of keeping his vines remote from different kinds, but all the while is looking more to the effect upon his seeds than upon his fruit. If you have a superior kind of melon, self-impregnation is the safest course for obtaining identical and good fruits; but there is a field open before us for the study of what kinds are the best adapted to plant together in order to get size and desirable mixed qualities, not in the produce from the seed, but in the fruit itself as the immediate result from crossing.

Is there not some one strawberry which when mixed with the Hovey seedling will produce larger fruits than others? I have never yet raised a large Hovey seedling, though they have had the best of culture for three years. For two years they were kept by themselves, and the third year were beside a large patch of Slater's *Alice Maud*. My desire has been to procure a strawberry which did not require the trouble of "*mixing in*" staminate plants. Is it not the case that certain trees, such as peach, pear, and apple modify the fruits to some extent upon the neighboring trees? I will close these remarks by citing a case which seems to me to be explicable upon this supposition. Joshua Pierce, an experienced horticulturist of this city, has a genuine Seckel pear on his place, which is generally so large as to be disputed, being frequently twice and three times the standard size. He is unable to account for it, but may it not be the *amours* of some neighboring pear tree, as he cultivates pears largely?

WASHINGTON, D. C., Jan. 20, 1825.

ON TROPÆOLUMS.

These are an interesting class of plants, as indeed all climbing plants are; but in addition to their elegance of foilage and habit of growth, they flower so profusely, and the color and form of their blooms are so rich and curious, that the smallest collection of greenhouse plants should embrace a few of this genus, more especially as they display their greatest beauty during winter and early spring.

The species are numerous, the kinds more commonly to be met with are T. tricolorum, Brachyceras, pentaphyllum, azuruem and Lobbianum, their native country is South America, and if, as many cultivators suppose, a high temperature is necessary for all plants native of that country, the present subjects must form an exception, as they attain greatest perfection when grown in a corner of a cool, airy greenhouse. The *corner*, however, must be a light one, they cannot have too much of that if you wish them to flower well. The care they require may be briefly summed up. Early in autumn the young shoots will proceed from the tubers, they should then be potted in a friable, somewhat sandy soil. Perfect drainage of the pots is indispensable. But as every one seems to have their own ideas of a perfectly drained pot, I may state that an eight inch pot requires to have at least one and a half or two inches of drainage material in it, to suit my notion on that point. The pots should be large enough for them to flower in, and trellis fixed at once, to which they shonld be regularly trained as they progress in growth.

For a few weeks after being potted, no water should be given, the soil will afford sufficient nourishment until rooting. Much water is injurious at all times, but this is the most particular stage of their growth. The tuber will not send out roots at all if the surrounding soil is kept constantly wet. I have been informed by those who have gathered them from their native habitats, that they are found frequently in marshy situations, inferring from this that a bountiful supply of water would be necessary in their artificial treatment. Such however, is not the fact. It is possible, indeed probable, that at particular seasons they would exist in such a situation, but if the same locality were visited when the plants are dormant, these conditions would be found reversed, at least, under artificiai treatment, they will certainly perish if treated as sub-aquatics.

When they are past flowering and give evidence of maturity, they should be set out in the sun, and after the foliage is withered and cut down, the tubers should be carefully removed and kept dry until they again show symptoms of growth. Of course, this treatment applies more particularly to those that form tubers. Those that do not, as Lobbianum, should be increased from cuttings and a young stock kept on hand; young plants of this variety set out in the flower beds in May will flower all summer, and form a fine object trained on a large trellis; cuttings set down in August and potted in October will flower early in spring in the greenhouse. Many beautiful hybrids have been raised by crossing this with the common Nasturtium. Cuttings strike root freely under careful treatment, but the simplest method of increase is by seeds, which ripen readily on most kinds, and if attention is given to hybridizing the various colors, much improvement might be made both in regard to color and size of flower, and there is no reason why they might not be produced as beautifully spotted and in as great variety as Calceolarias.

G. S.

For the Florist and Horticultural Journal.

THE PRIMROSE, COWSLIP AND POLYANTHUS.

DEAR SIR:—I presume that yourself and your numerous and intelligent readers will begin to think me a very monotonous and single class writer; but at the risk of being thought somewhat of a "curiosity man," I will venture once more to introduce to notice yet another of my idolized darlings—or rather, three of them under one subject—the Primrose, Cowslip and Polyanthus. The same culture answers for the trio, and they are otherwise so closely related in "kith and kin" that it would be superfluous to divide them.

In a natural state they are almost exclusively confined to Britain and the

adjacent isles, and are most commonly found growing in damp woods, moist meadows, or along the bottoms of hedge rows; notwithstanding which, they will prosper in the hot and dry climate of America, if properly cared for. There are many such spots as these plants delight in on most estates of any size, where the little emigrants would flourish and make themselves at home, become acceptable and agreeable companions to the many beauties with which our woods abound, would gladden our tastes of sight and smell, the more particularly so as they flower about the same time that many of the most handsome natives do.

The three subjects to which we have reference, generally rank in botanical works as so many distinct species of the genus Primula, and are known as P. vulgaris (Primrose;) the simple stemmed, P. veris, (Cowslip;) the compound stem with incurved limb, P. elatior, (Oxlip;) the compound stem with flatted limb, and from which the Polyanthus has emanated. It has been a much disputed point whether or no they are all from one origin; if so, P. vulgaris has been evidently the original type. Some botanists have founded their belief in this respect upon the fact, that they have seen the simple form become compound when under cultivation. Others, again, assert that the latter is always existing, only so close to the base as not to be discernable, excepting by dividing down to the centre. I have seen, in a state of nature, examples where the compound stem was not at all to be discovered, and likewise both forms on the same plant; but such examples are very rare.—As a general thing, the three forms of Primrose, Cowslip and Oxlip are very permanent in the individual variety, give them ever so much culture; and I know from experiment that no cultivation will change the character, excepting in very few cases; yet even this is sufficient to demonstrate the probability of one origin, and it likewise shows the reason why the different varieties from seed keep so true to structural character. It has been contended that the Cowslip is distinct from the others, on account of the stronger smell of Anise which its roots possess, the incurved form of the limb of the flower, the more inflated calyx, and the smaller and more wrinkled leaves; but this argument falls to the ground, when, as is true, we find these characters slightly change occasionally amongst a lot of seedlings, and approximate somewhat towards the Oxlip. Now, if the sportiveness inclines towards any particularly desired point in a natural way, we can mould after generations to our will—and so in this case. The prevailing color in a wild state is yellow, but all the forms are sometimes found diverging more or less into light, tawny crimson, or faint purple, so that this feature is no criterion; and I see no reason why an acknowledged specific difference should exist. This division is not an example of recent origin, but allow me to observe here, that

our modern genus and species makers are far too numerous, and often jump at conclusions which more practical experience would make them ashamed of. If some of them were to take a full course of lessons in experimental hybridization, and see the results, before beginning to divide and sub-divide the beautiful harmony which exists in nature's links, into such an heterogeneous jumble of confusion as nomenclatural botany is fast becoming to, the science would be much benefitted.

The Primrose and Cowslip not having come into such exclusive notice with the florist as the Polyanthus has done, the standard of perfection has not been so particularly defined. The Cowslip, although possessing much merit as a beautiful flower, is overlooked for the greater perfectness of the Polyanthus, but over the latter his stringent laws claim dominion, and which are as follows: The stem should be strong and erect, high enough to raise the truss well above the foliage. The footstalks of the flowers should also be strong, so as to support the pips well, and of a length sufficient to prevent crowding. There ought to be not less than seven pips, which will form a compact and well rounded bunch. The calyx should not be too much inflated, nor yet too narrow, but in proportion to other parts. The tube not longer than just to allow the limb or upper part to clear the calyx, being well filled with anthers, which should be regularly adjusted around the upper surface of the interior, not projecting too high above, but even with the plane of the limb. When the anthers project above the stigma the flower is technically known amongst the old veteran florists as "Thrum Eye;" without this peculiarity they would invariably discard any flower, however good all other properties might be. If the stigma is above the anthers it is called the Pine Eye. Many will no doubt (and with some propriety) think that florist's rules are very rigid, but it must be taken into consideration that perfection in symmetry, and general beauty is their only argument in the language of flowers. The eye should be of a bright and clear yellow, quite circular, and distinct from the ground colour, which may be either a bright scarlet maroon, or rich blackish and velvety crimson; in the centre of each division from the outer edge, a narrow stripe of the same colour ought to traverse down to the eye, and with this exception, a narrow but perfectly even band of bright yellow, of a near approach to that of the eye ought to encircle the flower, proceeding down to the eye between each division. The limb or upper part of the flower should be flat, without any serrature, each segment being equal in size, and not cut in so deep as to appear at all starry, the whole exterior outline forming a true circle, and the ten divisions equal portions of so many smaller ones.

The Primrose in all its more immediate varieties delights in a rich, retentive moist soil, being somewhat shaded from the summer sun, consequently there is no more suitable situation than damp woods; but there is no real obligation to place it here and no where else, for it will grow and flourish well in any place that commands shade, and is not too dry, if the soil be fertile and not over light. There are many of our city yards where these circumstances are under control, and in all such it may be cultivated. As to hardiness, it stood uninjured at this place totally unprotected on a north west slope, exposed to the most cutting winds of the severe winter two years ago, when the thermometer sunk several times below zero, and this is surely a sufficient test. One of the greatest drawbacks to success, is the attacks of Red Spider (Acarus) to which these plants are, in the summer time, very subject. When thus infested, the leaves assume a brown or russetty colour and appear burnt, the healthy action of the plant is interfered with, and if there is not a timely stop put to the insect, it will most assuredly destroy the subject. In this case sometimes the drenching rains are sufficient to accomplish the purpose, but in continued dry weather we must have recourse to artifice, and there is perhaps nothing better than a few oft-repeated syringings with a solution of whale oil soap in which a little sulphur has been mixed, say one pound of soap, and a half pound of sulphur to twenty gallons of water. This is a sure remedy, but common suds from the wash tub will often answer the same purpose, only more inefficiently. It is only when growing in over dry or exposed situations that there is any danger from this enemy, and when it does appear the remedy is very little trouble or expense. Propagation is accomplished by division of the stools and by seeds. The best time to divide is immediately after blooming or early in September, when the plant may be cut into as many parts as there are crowns, at the base of each of which is a portion of roots. When propagation from seed is attended to, care ought to be used that none is saved but what is from the best varieties and if artificial impregnation is attended to with an eye to the best properties, some very pleasing anticipations may be in part or often fully realized. The seeds is best sowed as soon as ripe in a shaded situation, choosing a somewhat loose soil; a portion of well rotted leaves is very good mixed up with the base; cover with glass or oiled canvass, but if glass be used, shade from the sun, and in any case leave the sides open to prevent damping, to which the young plants are very subject if deprived of a free circulation. When they have grown three or four leaves plant out about six inches apart, still choosing a shaded situation, and unless the weather be damp give liberal supplies of water. In the fall they will be large enough to be treated as is recommended for the general stock and will bloom in the following spring.

The most suitable soil is a good strong loam, to which may be added one fourth thoroughly rotted cow manure, and an equal portion of leaf mould, the whole of which have lain together for a season. Success will attend the cultivation in any ordinary fertile soil, but the above compost is all that the Primrose can desire.

Where there is the accommodation of a greenhouse or cold frames the flowers become considerably more attractive and beautiful, as they can be protected from storms and wet, which assists the blossoms in brilliancy of colour, and considerably forwards them. Under these circumstances they will bloom in the greenhouse from the middle of February, and in frames through March and April, after which time those in the open ground will continue on until the middle of May, so that with a little attention and convenience the flowering may be kept on for a long time.

When it is intended to have a supply in the greenhouse, the plants should be taken up and potted in six inch pots, about the beginning of September. Divide into single crowns, and choose the strongest, trim off any decayed roots and place one in the centre of each pot, previous to which, throw in the bottom an inch of crocks, or what is still better, an equal quantity of small lumps of charcoal, fill half up with the rougher part of the compost, over this a little of that which is finer; next place the plant with the roots spread out horizontally, fill up to the surface and around the collar, press the soil somewhat solid around the crown, but do not cover too deep, afterwards, give a good watering and plunge the pots to the rim in ashes or sand in a shady part of the garden; here let them remain until the approach of frost, when all decayed leaves or weeds should be cleared off, the pots washed and removed into the greenhouse, and placed close to the glass freely exposed to the sun and air. Too much heat, particularly in the night time, renders the flowers abortive. The back shelf of a Camellia or Geranium house is very suitable.

If they are to be grown in cold frames, fill in the compost to within eight or ten inches of the top, plant six inches apart, divide as before recommended for pots, and at the same time, keep off the glasses till bad weather sets in, and afterwards give air at all favorable opportunities; cover in the night through the winter with straw or other kind of matts, line around the sides with litter or earth, water rather sparingly until there is some movement of growth, when the soil should be maintained in a damp but not saturated state; for although these plants delight in a moist situation, they are soon rotted where the superabundant water cannot drain off; if any warm showers occur take advantage of them by sliding down the

sashes, but do not water overhead when the flowers are expanded, as the colors are thereby injured.

To succeed in the open ground, choose a shaded part, where the soil is not subject to drought during the summer months. If access cannot be had in this particular, mulch with rotten manure, and take care to give liberal supplies of water in long continued dry weather, and if red spider or green fly should make their appearance, syringe as above recommended. In damp woods, these little flowers are quite at home, and where there is this advantage a fine display may be had without more trouble than occasionally dividing the roots.

After blooming is over, if in pots or planted in frames, they should be removed to a shaded situation, and kept somewhat damp through the summer. Previous to planting, let the ground be well and deeply dug over, which will greatly assist the roots in penetrating downwards, and enable the plants to resist the drought much better.

If it be desirable to save seed, and raise improved varieties, some care should be taken. If first class Polyanthus be required, never use a "pin eye" variety for either parent, and choose two kinds of good properties, always recollecting that a good and free grower is the most likely to produce a hardy offspring, and should be made into the maternal parent. I would not advise in all cases that we should so strictly confine ourselves to the florist's absolutism, for there are many beautiful features in the various classes he claims, which his close discriminating eye would consider as worthless, but which nevertheless are very desirable, and when there is seen a tendency towards any pleasing form or color, take advantage of it, save seed, and retain that part of the progeny which is a further advance towards the desired object. Persevere onwards, and in time the anticipation will most assuredly be realized. Most respectfully yours,

WM. CHORLTON.

CUPHEA PLATYCENTRA.

The appearance of this perpetual blooming little plant is greatly enhanced when treated after the following manner. Although its natural habit be low growing, yet when only a single stem is allowed to grow it will attain a considerable height in a short time.

Select a cutting from the top of a vigorous, growing shoot, stick it into sand, cover it with a bell glass and plunge into bottom heat, and it will emit roots in a few days. As soon as it is wanted, pot it off into a 3-inch pot

using rich, light, porous soil; keep shifting as the roots fill the pot, never let them get matted, which will check the growth, which should not happen until the requisite height is reached; the more luxuriant the growth the less trouble there is in pinching off the flowers, which ought to be done for the first four months at least, in order to let the plant get large and well established. When once well started, insert a stake of the desired height near the middle of the pot, and as the leader grows tie it to this, and pinch out the points of the lateral shoots until the height wanted is attained, when they may all be allowed to grow. If too thick, which is often the case when stopped so much, cut out the weakest and most irregular.

All that is necessary now in the way of training, is to regulate the side branches in order to obtain a nice pyramidal specimen. No more sticks are to be used than the one in the centre — the main stem will support all its branches. In the early stage of its growth it should have the temperature of a hot house, and a light, airy position. Give a free supply of water to the soil, syringing over head morning and evening. They may be turned out of doors about the first of June, in some shady situation for awhile until it gets hardened, so that it will stand the sun; after which it should be set in an open situation where it will have the full influence of light and air. With the pot plunged to the brim, less water will be required. Very soon after its removal its beautiful little pendant flowers will begin to show themselves in great profusion, making a very striking ornament either for the greenhouse or flower bed; but if allowed to remain outside until the end of September, or as long as there is no danger of frost, it will enliven the greenhouse throughout the dreary months of winter with its profusion of blossoms. Care must be taken that the roots be not allowed to get dry, or all the inside leaves will drop off, which spoils the look of the plant.

When a large specimen is wanted a large pot is required; but in a 10-inch pot a plant may easily be grown five feet high and three feet in diameter at the base. As a bedding-out plant in the summer it has few equals as regards flowering properties, flowering in profusion from the day it is planted until cut down by frost—of which it will not bear much. It does better in an exposed situation than in a shady, and in a light rich soil than on a stiff clayey one.

A short time before planting it is best to remove the sash for that purpose from the greenhouse into a frame where the sash can be taken off by degrees, so as to harden them before setting out.

ETNA.

FROM THE (UNPUBLISHED) INTRODUCTORY LECTURE AT NEWARK COLLEGE.

BY PROF. S. S. HALDEMAN.

As long as the processes of labor were simple, that is, until a comparatively recent period, they were easily acquired, so that there was no necessity to teach them in the seminaries of learning. But as soon as a taste was developed for anything which required more than ordinary skill, special schools arose, as those of medicine and the fine arts; and some system of apprenticeship (which is a kind of manual labor school) probably arose when certain indispensable articles were required to be better or neater than those designated by the term home-made.

The construction and application of machinery has greatly enlarged the constructive faculty of the mind, demanding a modification of education in localities where the wants of it are greatest; and schools of applied art arise when taste becomes a necessary adjunct in manufactured articles. The bounds of chemistry have been extended from medicine, to a wide range of manufacturing processes; and in our own day, its profoundest generalizations have various practical applications in the animal and vegetable economy; so that as a study in abstract, as well as applied science, it has acquired a permanent place in the higher institutions devoted to general education, instead of the equivocal position once assigned to it, when it was frequently made a mere book recitation, with perhaps the exhibition of a few ordinary phenomena, dignified by calling them "experiments."

Until the necessity arose for the modern extended generalization of scientific principles, to adapt them to operative pursuits on a large scale, the *practical* in education was, as we have seen, of minor importance. More recently, the connected interests both of industry and learning have suffered, not from any disposition to do the former injustice, but because it has developed itself so rapidly in new directions, as to have temporarily obscured the mutual relation of the two, like that of gold and silver in a currency, when the production of one exceeds that of the other in some great and sudden, but unknown degree.

Although obscured for a time, the mutual relations of the different departments of knowledge are getting to be appreciated, but not equally in different localities. The colleges of Harvard, and of Yale, have a department of practical science. Princeton is about organizing a chair of applied science; and in the University of Pennsylvania arrangements of a similar kind are in progress. The result of this movement will be a recognised class representing *instructed labor*, as definite as the professions, arts, and trades.

By a natural law, the great mass of the human race is found cultivating the soil, or using it for pastoral purposes; so that the interests of agriculture are indirectly those of the entire community. This fact, which is loosely admitted amongst us in this country, is appreciated to such an extent in Europe, that numerous special schools have been established under government patronage, for education in practical and theoretical agriculture, including the theories involved in the conversion of inorganic to organic matter, the action of manures, the nature of soils, the causes of their deterioration, and the means of renovating them, rotation of crops, management of live stock, natural history of domestic animals, of useful and hurtful plants and insects; and the various interests concerned in cultivation.

A knowledge of the principles upon which the processes of active life depend, with the extensive employment of machinery, causes fewer failures in the results; and consequently, less labor has to be repeated on account of such failures; whilst improved modes of cultivation yield a better reward for a given amount of labor. Hence, such improvements afford leisure. This may be employed in moral and mental improvement, or in farther industry, which yields a clear gain, and thus becomes wealth. Some with Solomon, will prefer the former, and some the latter.

It is stated in the published journal of one Lorenzo Dow, that from the natural fertility of the soil of Ohio, which gave a large return for comparatively little labor, the farmers of that flourishing State had acquired lazy habits; and although willing to take the remark with allowances in this case, I cite it for the purpose of directing attention to the fact, that such a deplorable result is not to be regarded as impossible, when moral and mental cultivation, and industrious and temperate habits do not accompany prosperity, and the misfortune of having unemployed time. In the extensive existence of unemployed time, a careful historian might find sufficient cause to account for the downfall of nations.

A question now arises as to the mode in which spare time should be employed. I answer, in mental improvement—in becoming acquainted with the principles of our pursuits, raising them in general estimation, and in the case of agriculture, giving it the dignity of a profession. The average compensation of clergymen, physicians, and advocates is much lower than is generally supposed; and there is probably little to choose between their income and the rewards of manual labor, especially if the first outlay for the necessary knowledge is taken into account. But the calling of each of the former is a profession, that of the latter an art or trade—and in many cases it does not rank so high. The difference far from being arbitrary, is

founded upon the broad principle that the grade of the mind establishes the precedence; and it is an instructive fact, that in the dim distance of antiquity, perhaps 1500 years before our era, the words *man* and *mind* were drawn from the same root, it having been observed at that early day that man alone in the visible creation is distinguished by the possession of reason.

The professional man then, thinks and judges, whilst the routine man plods along with little more expenditure of thought than is necessary to preserve him in his routine habits. The dignity of the former is even extended to his compensation, which is termed a *salary* or an *income*, whilst in the other case it is *wages*. In extension of the same principle, although the human population of a country are counted as so many *souls*, laborers in the aggregate are called *hands*.

From the moment that the implement of a handcraftsman is guided by taste, he becomes an artist; and when the farmer understands the principles of his operations. and acts in accordance with them, *even to pursue a routine understandingly*, he enters a new sphere, and his business becomes a profession. This view is not to be controverted by the fact that there are jugglers who assume the title of professor, practitioners who would be better employed in breaking stone for a turnpike, if the morals of this industrial interest would not be thereby endangered ; pretended doctors who require the aid of a physician in surgical cases, and compounders of cherry-pectorals who should be in the penitentiary for forgery.

The education even of professional men requires modification ; a taste, if not for science, at least for scientific inquiry, being spread through every condition of society ; so that those who are supposed to be educated, are continually liable to be asked to explain some fact in mechanics, meteorology, geology, natural history, or chemistry.

The lawyer has his patent-right cases involving questions in the construction of machinery, where misconception may make him ridiculous before an intelligent juryman, whose occupation perhaps as a smith, may have aided in making him a good mechanician.

Clergymen are called upon to combat the plausible absurdities of the enemies of revelation ; and physicians are universally deemed the proper recipients of curious narratives, which are closed with the undeviating formula—" How do you account for it, doctor ?"

Next to the professional man, the teacher of the nearest school is supposed to be able to furnish solutions to difficult questions, although he is seldom able to go beyond the strict line of his pursuit. Teachers frequently

complain that their calling is not properly appreciated, a complaint which will diminish to the extent that every grade of teaching is adapted to the public wants. School teachers must therefore partake of the general improvement in education, and those who wish to qualify themselves by a full or partial college course, should be supplied with a kind of normal school instruction adapted to their wants.

Farther our colleges must be able to supply to a greater extent than formerly, the demand for civil and mining engineers, surveyors, architects, draughtsmen, chemists, and observers in meteorology and magnetism, in addition to the necessary preliminary education required in the professions. The great body of medical students have not had a proper preliminary education, although there is a great demand for properly educated physicians in the army and navy.

The United States government exhibits a strong disposition to encourage the development of the natural history of its distant domain, and applications are made from time to time for competent investigators in geology, zoology, and botany, to accompany the various exploring expeditions—and it is a matter of difficulty to supply these places properly.

Young men anxious to employ their leisure in extending the bounds of knowlege, have ample opportunities to do so by investigating the history of insects in their economical relations, with a view to counteract their depredations ; and the success of such attempts must depend greatly upon having a number of competent advisers distributed in various localities, to take advantage of fitting opportunities as they occur.

If I am asked the use of such studies, I answer, that living in an age of less bodily but more mental activity than formerly, an activity, as I have already remarked, which brings leisure, and admits of a choice among physical and mental occupations, whether they involve utility, taste, amusement, or caprice. Although the chief ends of labor are food, clothing, and a dwelling place, with the health which arises incidentally from bodily exercise, the food which to speak figuratively is "ruminated," is as important if not as essential to a reasoning creature, as that which is masticated.

The athlete does not develope his powers by fighting continually, but by exercising his muscles in such a manner as to enable him to develope their nascent powers that they may be used to the best advantage when required. So natural science cultivates the observing faculties, fosters cautious habits, and improves the judgment. As the detection of minute differences in nearly allied objects is an essential part of natural science, the mind ac-

quires the useful habit of examining minutely, instead of the vicious one, of getting crude, partial ideas by a mere glance. Swainson remarks that, "as no science requires more observation, or greater nicety of discrimination than natural history, so upon this account only, it is the very best pursuit that can engage the youthful mind, since it will be qualified to apply that acuteness and judgment upon greater things in after life, which may call for the exercise of sound reason and just discrimination."

It is necessary that young men who wish to be educated should be made acquainted with these things, that they may be on their guard against the multitude of speculations which rise, run their course, and make way for others equally worthless or pernicious.

In conclusion, I have only to say that although the student may be sometimes inclined to allow himself to be dazzled by the plausible sophistry of the class which makes such formidable displays of the fragments of science; unless he has been previously contaminated, he can have no real difficulty in determining the class which, under Providence, has constructed the stupendous temple of science, which is open for the benefit of all who enter with the determination of profiting by it.

WILL FARMING PAY?

(From an Address at Northampton, Mass., by Wm. S. King, Esq., of Boston.)

Farming may be made profitable, Mr. President and Gentlemen: but, if my view of the subject is correct, only by those who farm well. Let me ask your continued attention, then, while I state how, in the absence of Agricultural schools, good farmers may be multiplied.

Prominent among the means of instruction are the Show and Reports of the County or State Society. Here are to be found, for comparison and competition, what the best farmers of the district consider their best stock; here contend for precedence the most thorough plowmen, giving specimens of their work, by which all may judge of their claims, and many may learn for the first time, what is pronounced to be good ploughing; here congregate the inquiring minds, and the men of experience,—at this farmers' exchange; some one, supposed to possess ideas worth the hearing, has been selected to address the assembled multitude; the Transactions of the Society, when published, give forth the doings and the opinions of the most successful farmers, whereby others may profit. All these things go to form a school, whereat those who crave knowledge of their craft may obtain it.

But it too often happens that preparation for the Annual Exhibition is

put off until within a few weeks—and, frequently, a few days—of the Show. The full value of the fair will not be realized by Exhibitors and Competitors, nor will the greatest benefit accrue to spectators and students, until the show, in the stead of being a scramble for premiums on chance-grown crops and haply-excellent animals, shall be an exposition, in the case of every exhibitor, of the result of a twelve month's study, care and diligence. To effect this so desirable end, no instrumentality can excel the FARMERS' CLUB. And of these, there should be one in every town,—every village,—every neighbourhood; alive and at work throughout the year; drilling and instructing its members against the day of Annual parade.

The value of a club is not generally appreciated, or no town would long consent to be deprived of its influence. In the first place, at these conversational meetings, held once a week, or twice a month, members become accustomed to speak in public, and to express their views with ease. Most men, without practice, are frightened at the sound of their voices. When they rise upon their feet to address an audience, the thoughts that filled their minds desert them. Almost every speaker will confess to a like experience. But, by degrees, one acquires a self-confidence, which enables him to feel as much at home on the floor and before an audience, as when seated in his own chimney-corner, detailing the events of the day to the good wife and children.

In the next place, these occasional meetings strengthen neighborly feeling. Farmers live an entirely too secluded life; they visit little among each other, and seldom stray far from home, except to the store for groceries, or to the town-house to vote. Consequently, they lose much of that enjoyment which society affords, and unsocial (not misanthropic) habits grow upon them. To go out to spend an evening with a neighour is a matter for a month's discussion. News travels slowly through an agricultural district: so does information. Farmers get behind the times. Now, for all these evils the Club offers a radical cure.

Thirdly, no American farmer can attend to the meeting of a Club of his fellows, without receiving instruction. There is no one so well posted up in all that pertains to his profession, that his neighbors cannot enlighten him on some points, by the narration of their successes, or their failures;—for a failure conveys as good a lesson, as the most complete success. Failures warn us from following example, as successes incite us to imitation. Then, again, one farmer may be an oracle on stock raising, another excels in tillage-crops, a third—(perhaps this third man may be a mechanic or a clergyman, who has joined the Club for the benefit of his garden-patch or glebe)—he is wise in horticultural lore. These three Yankees cannot long occupy the same room without a barter of their intellectual commodities. The par-

son has swapped away a remedy against peach-borers, for an idea about raising carrots; the stock-breeder has given his friends a cure for garget, or taught them how to pop-out "warbles;" in return for which he carries home a new wrinkle about orchard-management, or the most economical way of draining his low lands, &c., &c.

Fourthly, the Club induces men to study and to observe with nicety, that they may have something to add to the common fund, in return for what they have received therefrom. This is human nature,—that is, the human nature of honorable men. We are not more willing that our comrades should teach us without return, than that they should feed or clothe us without pay. Then our pride spurs us on to show that, we too, have a contribution for the common stock, and if it does not happen to be on hand, we bestir ourselves to acquire it.

Fifthly, few enterprising men thus brought together once a week, or more or less often, to discuss a subject of common interest, will not long be contented with the narration of what they have done: they will cast about for new fields of exploration, or seek to enlarge the bounds of the old. Thus experiments will be suggested and agreed upon for a coming year; or a county fair will be proposed; or the foundations of other good works be firmly laid.

Sixthly, farmers, seeing the results of combined effort, will be gradually led to value it, and to employ it in all matters interesting to them as a class. One, and the only reason why the farmers of America are without power, is because they have never learned to act in concert. Touch the tariff, and the whole manufacturing interest is in a ferment; meddle with the slavery question, and North and South buzz like bees and hornets; impose upon artisans, and every city swarms with remonstrating mechanics. But the farmers, though numerous, are divided, and beaten in detail.

Seventhly, frequent meetings of farmers will have a tendency to wear away prejudices; which now, as a class, they rather hug. He must be an unusually obstinate individual, who long resists evidence addressed to his ears and eyes, and arguments that appeal to his pocket.

Last to be mentioned, but not the least to be preferred among the means of improvement, is the reading of agricultural books and journals. To little purposes have I talked, or have you listened, to-day, my fellow farmers, if you are yet convinced that Agriculture is not only an Art, to be acquired by practice and observation, but as well a Science, to be mastered only by study and thought. Books and papers are the silent instructors for the fireside, or the neighborly gathering. They contain the rich treasures of others' experience, collected in small compass from many and distant places,—the tale of long years toil, told on a single page. The farmer, who undervalues

this cheap and easy mode of instruction, is no Solomon: and he who overlooks and neglects it, is far from being a sage. Show me the men, who sweep your premiums; and nine out of ten of them, I venture to assert, are the reading and thinking farmers. Show me the farmer, whose purse has grown weighty with coin,—whose pocket-book is plethoric,—to whom the rustling of bank notes is familiar music; and, ten to one, he is a reader and a thinker.

CALENDAR OF OPERATIONS.

FRUIT.

Grapes in houses will start into growth towards the end of the month; keep them in a horizontal position until the bottom buds burst, and rub out all extra buds, so that the best is retained at each eye. When they are spur-pruned close, a congeries of buds will make their appearance, and it is important that all superfluous ones should be taken off before leaves are formed; if they are allowed to grow until five or six inches in length, and then reduced, it causes an injurious check to the plant's growth. If not done in autumn, a slight top dressing may be given. If the soil is well drained, as it ought to be, and the roots spreading near the surface, a mixture of fresh loam, horse droppings and small charcoal may be spread to a depth of two inches over the border. This applies to hardy grapes as well as to the tender sorts. The house should be kept as open and well ventilated as possible, and shut close up only on the appearance of frost; we have seen the temperature reduced to 38° on two successive nights, while the vines were in flower, without any apparent injury. There is less danger from a low night temperature than is generally supposed, provided the day temperature is kept to a proper standard. There is undoubtedly much yet to be learned in the forcing of fruits and flowers during winter. From observations recently made, we are convinced that low (comparatively speaking) night temperature is beneficial. Physiologists tell us that low temperature is favorable to the altered functions of vegetation in the absence of light; and if we look to nature, we find that even in tropical climates absence of light is also followed by diminution of temperature. The purity of the atmosphere consequent upon a low night temperature is also conducive to health. It is considered a good sign of health to see the "pearly dew" on the edges of leaves in the morning; this is never seen after a hard night's firing, the heated air carrying off the moisture in the air which is condensed in contact with the cold

roof. External coverings should be more generally employed; as a matter of economy they would effect considerable saving in fuel, and if a stratum of air was retained between the roof and the covering, the former would retain a more equal temperature, and the disadvantages of high artificial heat considerably lessened.

Gooseberries and Currants—the pruning of these should not be delayed; the bushes should be thinned out in the centre; they are generally too thick, which injures the quality and size of the fruit. In pruning the former, leave young wood for bearing, and do not top the point of every shoot unless your object be to produce plenty of wood. Give a heavy dressing of manure, and fork it about the roots; currants will repay all extra attention, and in some situations gooseberries also succeed well, if properly attended to.

Raspberries should be staked out and thinned out, securing them properly to the stakes, so that the fruit will not be destroyed by the plants breaking down in a gale. They require rich soil, and deep, gravelly subsoil suits them well, provided the surface is well enriched, and the plants allowed sufficient space for their proper development.

Planting.—The season for spring planting is now at hand. Be careful, in moving trees, to preserve the roots from getting dry, and when setting them, cut all bruised and ragged roots smoothly off; do not plant deep, with the idea of saving trouble in staking; rather form a small mound of soil about the roots and stem, which will serve a double purpose—steadying the plant and throwing off heavy rains; the soil can be levelled down when all danger from either of the above causes is past.

Strawberries, in strong soils, are frequently thrown out of the ground with frosts; a top dressing of good compost will be of much service when this has occurred. When the soil is dry and friable it should be slightly forked up, taking care that roots are not injured; and planting new beds may also be proceeded with, and due attention should be given to the mixing a few staminates with the more productive pistillate varieties; by this means the heaviest crops are secured. Amateurs, who prefer quality to quantity, will plant more of the finest staminate kinds, of which there are now many very superior sorts in cultivation.

As soon as the surface will admit, the soil should be stirred so as to admit heat to the roots, and break up the soddened surface after the storms and snows of winter; the late snows will render this operation a very necessary one. Spring warmth will rapidly come on us, the air warm and the roots cold and wet—conditions which hurt the fruit prospects much more than is generally supposed, more especially when accompanied with slight frosts towards the end of the month.

S. B.

Flower Garden.—The importance of draining has been frequently urged in this department of "the Florist;" but the state in which we still frequently find the walks, lawns, and flower gardens of our friends, teaches us that it cannot be too often pressed on their attention. Passing recently over the grounds of an acquaintance in his company, we were compelled to abandon the walks, and take to the turf; it had been rapidly thawing for a day or so, and our feet went into the gravel up to the ankles. I remarked that the walks had been badly constructed originally, but was corrected by my friend's observation that "the frost had not got out of the gravel at the bottom to let the water at the surface through." This looks like a good reason for bad walks, but it will not bear examination. Walks should be so constructed, that little or no water can lay on, or get into the material to freeze, so that when a thaw comes, there is nothing to make a walk wet. This is to be effected by forming a walk of *binding* material, *rounding* it slightly in the centre so as to throw the water completely off it, and in the first place constructing a good *underdrain* in the centre of the walk, so as to draw in the water as rapidly as any may percolate through the material. These underdrains should have no connection with the surface, as they will in that case be easily choked by the sand and gravel of summer thunder storms. Hard frosts succeed so rapidly to rain storms in this country, that the best constructed walks will occasionally be bad; but this ought not to render them as we so generally find them, useless for a third of the year. The theory of draining is still ill understood. Every one of experience in the matter, knows that land underdrained, is drier in winter and moister in summer than it otherwise would be; but very few see clearly *why* it is so. It depends on the principle that air is a better non-conductor than water; and non-conductors do not get rapidly hot or rapidly cold, consequently are not so liable to become extremely dry or wet. When we underdrain wet land, a channel is opened through which the water in the soil is drawn, and as air will always follow where water escapes, the worst non-conductor is taken out of the soil and a better substituted. A well-drained soil is, in other words, a soil well-supplied with air; and is thus capable of letting a superabundance of water escape through it, and of offering the best resistance to excessive evaporation. The season has now arrived for putting everything in this department in order: walks cleaned, shrubs finished pruning, lawns cleaned, and any improvements, or alterations proceeded with. "Procrastination is the thief of time," and on no one does his peculations fall more heavily than on the gardener. As soon as danger from frost is past, the best time to plant box edgings has arrived. To amateurs who cannot command the services of professional gardeners, the operation comes "un-

handy." The soil where the edgings are to go, should be first dug up, then trodden and beaten firm, carefully levelled or graded on the surface, a *face* cut with the spade on the proposed line; small, well-rooted plants of box employed and placed level with each other against the face, and the soil carefully filled in. Every one can lay a box edging, but few can do it well. Now is the time to get in a good stock of perennial herbaceous plants for the borders. The "massing" system of growing one kind of plant in separate beds for gorgeousness of display, has caused this tribe to be less cultivated now than they formerly were; and annuals are mainly depended on for a supply of blossom for the summer. But few things can compare with the grandeur and beauty of the many improved varieties of Hollyhock, Columbine, Phlox, or Campanula, or even of that "old fogy," the Fraxinella or similar plants. Of the half hardy plants used for bedding out, the amateur will see in time that he has a good stock of all desired things on hand, and especially of Petunias, which he will find amongst the very best plants to keep his flower garden gay from May to November. Any Chrysanthemums that have been under protection during winter should be planted out in the richest part of the borders; they will produce strong shoots there for affording cuttings next month. If they be desired to flower finely in the open ground, a moderately dry situation should be selected for them, a damp one will give you fine foliage but few flowers. Carnations, Pinks, Polyanthuses, Antirrhinums, and other hardy things kept slightly protected through the winter, should also be planted out as soon as the hard frosts are pretty well gone. The earlier they are out the finer they will flower. A very beautiful tribe of plants, the Hepatica has become very scarce the last few years, principally through being kept in the full sun. Their beautiful single and double flowers, of nearly all colors, are amongst the first to cheer us after the winter's departure. The double and single varieties of the Primrose are also in the same category. They thrive best a *little neglected*, in some dry, cool, and shaded part of the garden, with a very little leaf soil occasionally, as the only manure they receive. I should also like to see the hardy kinds of Azalea and Rhododendron far more generally cultivated. They are certainly at the head of ornaments for the shrubbery. Now is the time to see to these things. If the convenience of a frame can be had, a few tender annuals may be sown by the end of the month; such as globe Amaranthuses, Thunbergias, Balsams, and so on; but although these flower earlier, they will not without much care do so well as those sown in the open ground in May.

GREENHOUSE.—If Azaleas have been kept under the most favorable circumstances—that is, in a house with a western aspect, kept but just above

freezing point—they will be but just coming into flower. Great care is requisite at this period, and it will be as well in this place to recommend to the novice the reperusal of an excellent paper on their management, in a recent number of this journal. The Rhododendron will require pretty much the same treatment. If some of these are required to flower early next season, they should be taken now, their flower buds thinned, placed in a higher temperature, in a light place, and every encouragement given them to grow and ripen their shoots early; on this will depend much of the success of forcing Azaleas and Rhododendrons. The Camellia is very apt to be infested with the red spider at this season; its ravages are soon seen in the whitish-brown lines it marks on the leaves. While the plants are growing, a vigorous use of the syringe will be of much service, and help to keep down their enemies. As soon as the young growth shows signs of maturing, a syringing of common soapsuds will destroy the spider and not injure the plant. Cactuses should also be watched for the same pests, and the same remedy applied.—The fine old kinds, C. speciosissimus, C. Jenkinsonii, &c., seem to have been given up pretty generally into the hands of cottagers and window gardeners; but there were few more beautiful ornaments of our greenhouses when "we were boys."

Next month will be the Cineraria season. The improvements of the last few years have deservedly placed this tribe in the lead of spring beauties;—those who wish to excel in their culture must keep them carefully staked out and placed as near the glass as possible to keep them dwarf and stocky;—they should also have two weekly doses of manure water, carefully guarding it from being too strong. All plants, in fact, destined as specimens, must be constantly kept staked out; and the soft-wooded kinds receive occasional doses of liquid manure. Verbenas, to be grown in pots, should never be allowed to become "pot-bound;" to get good specimens of these requires pretty large pots. In potting all soft-wooded things, above all aim at keeping the soil open—turfy loam is essential to good pot culture; where loam not turfy has to be used, I would add a portion of chopped hay or straw with it as a substitute. Dahlias that have been lately "started" will require "striking off" as soon as the shoots are a few inches high. If a large number of plants are desired, and a slight bottom heat can be commanded, these shoots may be merely slipped off, put into small pots singly, and thus struck; but if only a few of each are wanted, the best plan is to turn out the whole root as soon as a good number of shoots have pushed, and divide them so that a portion of the root remains with each shoot.

Hot-House.—I have before observed in these "hints," that there are few tribes so useful for summer, fall and winter decoration of the houses as the Begonia. Now is the season to propagate young plants; as well, indeed, as of Pentas carnea, Vincas, and other desirable autumn-blooming plants.—Young shoots a few inches long of most things strike more readily now than at any other season. Euphorbia jacquiniflora, and Poinsetta pulcherrima, after they have done flowering, do well kept rather dry till May, when, if they be turned out of their pots into a rich border in a warm spot, and pinched in as they grow, will make splendid specimens, to be lifted again and potted early in September. A few Achimenes and Gloxinias, as stated last month, may still be started by being kept a little moist and in a warm temperature. As soon as they begin to push, pick out the tubers, place them three or four in 6-inch pots, in coarse turfy loam mixed with charcoal, broken about the size of marbles, or half-decayed sticks. They will take an abundance of water as soon as they start fairly into growth.

Every opportunity should be taken to give an abundance of fresh air avoiding cold currents and keeping the temperature about 55° by night and 65° by day, and using the syringe frequently morning and evening. These last remarks especially apply to orchideæ in a growing state. They require less air and light than any other stove plants; but even these are advantageous to them, when they can be afforded without too much loss of moisture.

Vegetable Garden.—As soon as possible the earliest crops of Potatoes should be planted. After numerous trials with early varieties, I still adhere to the old walnut-leaved, and find none of them much earlier than the "Mercer." In Peas also, the Prince Albert and Extra Early still keep good characters. The remarks in last month's journal still require attention; and the earliest opportunities seized to get in the crops of Onions, Beets, Radishes, Lettuce, Cabbage, Parsley, Spinage, Salsify, and Early Horn Carrot. Where beds of Asparagus, Rhubarb, Horse Radish or any of these more permanent crops are to be made, they will be better for being put in as early in the season as possible. Where Asparagus is taken up for forcing, a quantity of seed should be sown every year to supply their place, if there be abundance of ground and time to attend to them. In other cases it is best to procure a quantity of three year old plants from the nurseries as wanted, to supply deficiencies. Towards the end of the month a little of Seymour's Solid Celery may be sown on a slight hotbed for an early supply, though the main crop had better be deferred a few weeks.

T. J.

CYPRIPEDIUM INSIGNE AND VENUSTUM.

Although it is not my intention to meddle too much with Orchids, yet these two Lady's Slippers are plants, comparatively speaking, of such a hardy character and easy culture, and withal so interesting when in bloom, that I cannot help introducing them to the notice of your readers, more especially such as have only limited accomodation for growing plants. The soil in which I have found them to succeed best has been three parts good peat and one part good turfy loam, broken up roughly, and mixed liberally with silver sand; potsherds broken small and charcoal dust may also be intermixed with advantage, in order to keep the materials open. In potting, care must be taken to secure good drainage, by means of plenty of potsherds in the bottoms of the pots, covering them with a layer of dry moss.

Propagation is effected by division, *i. e.*, by parting the plant into as many pieces as have roots attached to them. Pot in the first instance in 5-inch pots, and plunge the plants in a pit, where a gentle bottom-heat and a warm moist atmosphere can be kept up; the temperature may rise to 70° or even 80° with advantage. Shade in bright sunshine, and the plants will soon establish themselves and make rapid progress. Give a shift into 6-inch pots, as soon as it is found that the roots have penetrated through the ball of the earth. Remove the plants into their former position for a short time, after which they may be removed to some warm part of the greenhouse. Give water as it may be found necessary until the approach of winter, when it should be gradually withheld, in order to induce a state of rest. Soon after they have begun to grow again, flowers will begin to make their appearance. The plants may then be moved to the conservatory or show-house, where, if the atmosphere is congenial as regards heat and moisture, they will bloom in perfection over a period of at least two months.

Should large specimens be wanted, the plants after flowering may be repotted into larger pots, using the same materials for the compost as before. Place them again in a gentle bottom-heat, and secure a moderately high atmospheric temperature. In bright weather, shade whenever necessary, and syringe daily to secure a moist growing medium. When growth is again completed, remove them to the greenhouse, and rest them; fine large plants will now be formed, which will bloom profusely the following season. Pursue this treatment until you have got plants enough, when the use of pits and bottom-heat may be altogether dispensed with, as C. venustum, with its black blotched leaves, and C. insigne are, as I have said, very hardy, and will succeed and bloom freely in a common greenhouse.—*Alpha, in Gard. Chron.*

PENNSYLVANIA HORTICULTURAL SOCIETY.

The Stated Meeting of the Society was held February 21st, 1854. Dr. Wm. D. Brinckle, Vice President, in the chair.

The chairman of the special committee appointed at the last stated meeting on the subject of petitioning the Legislature for a law declaring the stealing of Fruits, etc, a larceny, made a verbal report, that they had performed the duty assigned them, by preparing a petition, which, being signed by the officers, was sent to the Legislature ; and requested to be discharged, which was granted.

The following premiums were awarded:

Camellias—Twelve cut flowers, six varieties, for the best, to Robert Buist ; for the second best to the same. *Collection of twelve plants*,—for the best, to Henry Chitty, gardener to J. F. Knorr ; for the second best, to Robert Buist. *Specimen plant*—for the best, to Henry Chitty. *New plants*, shown for the first time, a premium of three dollars, to Henry Chitty for Azalea vittata, A. punctata, A. amœna, and one of two dollars to Robert Buist, for Berberris nepalensis, Boronia trifoliata, Eriostemon pulchellum, Azalea amœna, A. vittata, A. Iveryana. And a special premium of three dollars for a fine display of Hyacinths, designs of Primroses, &c., &c., to Peter Raabe.

Vegetables—A special premium of one dollar to Thomas Meghran, gardener to W. H. Stewart, Torresdale, for a display.

The Fruit Committee made their Ad Interim Report, a portion of which, relating to the Strawberry question, was objected to by Mr. Cope, and upon his motion referred back to the committee with instructions to reconsider the subject thereof, and report after the next Strawberry season.

Some remarks were made by Mr. Hanson, and on his motion it was resolved, that the subject of the changeableness or otherwise of the sexual organs of the Strawberry be referred to the Committee of Botany.

AD INTERIM FRUIT REPORT.

The Fruit Committee respectfully present their usual monthly Ad Interim Report, in relation to the Pomological objects submitted to their examination since the last stated meeting of the Society.

Wortley Hall Seedling—from J. Fisk Allen, of Salem, Mass.—Mr. Allen considers this Grape far before all others for the retarding house. The Wortley Hall Seedling has some resemblance to the West's St. Peter's. The berry of the former, however, is more oval in form, and has thick skin. Bunch, seven and half inches long by three and a half broad ; shouldered ; berries loose on the bunch ; berry, seven-eighths of an inch long, two-thirds wide ; form, oval ; colour, blush black ; skin, thick ; flesh solid ; flavour sweet, and somewhat vinous ; quality, taking into consideration its long-keeping property, "*very good.*"

Newton Pippin Apple—from Dr. E. S. Hull, President of the Alton Horticultural Society, Illinois. These were the largest and most beautiful specimens of this variety that we have seen for many years. They were more conical in form than those we ordinarily meet with. *Quality* "*best.*"

Gullett Apple—from Dr. E. S. Hull, Alton Illinois.—Specimens variable in form and external appearance ; one specimen resembling Pryor's Red. Size, large, from three and one-eighth inches long by three and seven-eighths broad, to two and seven-eighths by three and three-eighths ; form, oblate inclining to conical, sometimes oblong ; colour, brown in stripes, on a greenish yellow ground, with numerous grey dots, and occasionally a few green russet blotches ; stem, five-eighths of an inch long, and slender, often short and thick, inserted in a deep, narrow, sometimes open cavity ; calyx, medium, set in a small, often rather wide, shallow basin ; core, small ; seed, small, dark brown, acute-ovate ; flesh, fine texture, juicy ; flavour, pleasant ; quality, "*very good.*"

The Gilpin, or Carthouse Apple—from Dr. E. S. Hull, Alton, Illinois,—Specimens not true to name. The variety being unknown to us, we annex the following description of it ; Size, under medium, two and three-sixteenths of an inch long by two and five-eighths of an inch broad ; form, conical, broadest at the base ; colour, mottled and striped with red, and interspersed with many grey dots ; stem, half inch long by one-ninth thick, inserted in an open, acuminate cavity, slightly russeted ; calyx, medium, set in a wide, rather deep basin ; flesh, crisp, juicy ; flavour, pleasant ; quality, "good."

Rawle's Janet—from Dr. E. S. Hull, Alton, Illinois.—Size, medium, two and seven-eighths inches long by three broad ; form, roundish ; colour, mottled and striped, with pale red on a greenish yellow ground, stem, slender, three-fourths of an inch long by one-tenth thick, inserted in a narrow, acuminate cavity ; calyx, medium, set in a wide shallow basin ; flesh, greenish white, fine texture, tender, juicy ; flavour, excellent ; quality, "very good."

Reading Pear—from Nicholas Lott, Reading.—This fine native winter pear we have repeatedly noticed in our Ad Interim Reports. Specimens not as large as usual.

Pears for their name—from Nicholas Lott, Reading.—These were large specimens of *Uvedale's St. Germain*, familiarly known in this country as the *Pound Pear.*

Orange Pippin and Dumpling Apples—from Nicholas Lott, Reading.—In former Reports we have noticed both of these varieties.

Keim—from Mrs. Kessler, Reading.—This late-keeping native apple has been noticed in several of our previous Ad Interim Reports. Specimens from Mrs. Kessler very fine.

In concluding our Ad Interim Report, we take great pleasure in stating, that several of our Rail Road Companies have given practical and substantial evidence of their interest in the cause of Horticulture, by extending to us important facilities in the prosecution of our pomological investigations. The facilities to which we allude are free tickets, kindly presented to one of the Committee, and to be used by him as often as required, during the entire year 1854. For these privileges we are especially indebted to John Tucker, President of the Philadelphia, Reading and Pottsville R. R. Company ; to Edgar Thompson, President of the Pennsylvania R. R. Company ; to Joseph Yeager, President of the Harrisburg and Lancaster R. R. Company ; to S. M. Felton, President of the Philadelphia, Wilmington and Baltimore R. R. Company, and to Wm. H. Gatzmer of the Camden and Amboy R. R. Company. Such liberality on the part of the Presidents and Managers of these Companies, in aiding Horticultural explorations and researches, and diminish-

ing the taxes levied from individuals in their disinterested labors to promote a great national interest, merits our cordial thanks and public acknowledgements.

The following are the appointments by the President of the Committees for the ensuing year:

Of Finance—Caleb Cope, Newberry A. Smith, Henry A. Dreer.

Of Publication—Wm. F. Jones, Wm. S. Vaux, Thos. P. James.

For Establishing Premiums—James D. Fulton, Thomas Hancock, J. F. Knorr, J. E. Mitchell, Thomas Meehan.

For Establishing the Names of Fruits—Dr. Wm. D. Brinckle, Thomas Hancock, James D. Fulton, E. W. Keyser, R. Buist.

Library—R. Buist, T. P. James, Wm. Sinton, James Bisset, Sr., R. Kilvington.

For the Distribution of Seeds, &c.—C. P. Hays, E. Randolph, W. Sinton.

FOR AWARDING PREMIUMS.

On Plants and Flowers—Peter Mackenzie, J. E. Mitchell, Thomas Clark, J. F. Knorr, G. W. North.

On Fruits—E. W. Keyser, Dr. W. D. Brinckle, Dr. Gavin Watson, J. D. Fulton, Thomas Hancock.

On Vegetables—Charles P. Hayes, John Horton, Benj. Gullis, T. Meehan, Joseph Ewen.

On Entomology—S. S. Haldeman, Dr. Brinckle, John Cassin, Wm. Hobson, James Ridings.

On Botany—Dr. Wm. Darlington, T. P. James, R. Kilvington, Dr. A.L. Kennedy, T. Meehan.

On Agricultural Chemistry—Dr. Robert Hare, James C. Booth, Charles Ellis, Ambrose Smith, Edmund A. Crenshaw.

To Superintend Exhibitions—James Bisset, Sr., James Bisset, Jr., John R. Brinckle, Dr. W. D. Brinckle, R. Buist, W. D. Burr, Thomas Clark, H. W. S. Cleveland, Henry A. Dreer, George W. Earle, Joseph Ewen, Geo.W. Fahnestock, James D. Fulton, B. Gulliss, C. V. Hagner, T. Hancock, H.C. Hanson, Chas. P. Hayes, John Horton, E. W. Keyser, R. Kilvington, J. F. Knorr, N. Knowles, Oliver Landreth, P. Mackenzie, Thos. Meehan, Edwin Meredith, Joseph W. Miller, George W. North, Wm. Sinton, George Vaux, Wm. S. Vaux, Dr. Gavin Watson, Gavin H. Woodward.

Members Elected—J. Engle Negus, Thomas T. Lea, E. E. Goddard, Hy. Sargeant, Alfred Nesmith, Henry Hay, Marmaduke Moore, Samuel Altemus, J. H. Dunn, Augustus Heaton, William Bright, W. Thompson Martin, Ernst Winther, Dr. Owen Osler, and Pliny E. Chase.

OBJECTS EXHIBITED.

Plants—By Henry Chitty, gardener to J.F. Knorr—New Plants—Azalea vittata, A. punctata, A. amœna, specimen plant—Begonia manicata; Mahernia odorata, Lasiandra splendens, Franciscea latifolia, Primula sinensis, fl. plen. Azalea Georgina, A. Trotteriana, A. indica alba, Begonia manicata, Chorozema varium, Eranthemum pulchellum, Centradenia floribunda, Azalea exquisita var. rubra.

By R. Buist—New Plants—Eriostemon pulchellum, Berberis nepalensis, Boronia trifoliata, Azalea amœna, A. Iveryana, Chorozema cordata, Centradenia rosea, C. floribunda, Corræa speciosa ventricosa, Franciscea latifolia, F. eximia, Rhipsalis parasiticus, Erica rubra calyx, Azalea Hibbertii, Spiræa Reevesii, Kennedya Marryattæ; also, twenty-four cut flowers of choice Camellias.

By Peter Raabe.—Two Azaleas, Pots of Hyacinths, Primulas, Crocus, &c.

By Thomas Meghran, gardener to W. H. Stewart.—A brace of Cucumbers, Mushrooms, Tomatoes, Asparagus, and eight kinds of Radishes.

The Horticultural Review and Botanical Magazine, conducted by John A. Warder, M. D., and J. W. Ward, Esq., Cincinnati, O., $3 a year. Under this title, our friend, Dr. Warder, and his assistant, Mr. Ward, have re-established the *Western Horticultural Review*, a work which had become widely known and everywhere praised. We congratulate the Doctor on his restoration to health—and his subscribers on again having such instruction as he can give them. As an authority in matters pertaining to Grape culture, and the management of the Vine generally, and wine making, it is peculiarly excellent. Emanating from the centre of the wine district of America, and having such able aids in this department as Messrs. Longworth, Rehfuss, Buchanan, and other growers of that locality, it must necessarily be read by all interested in that branch of industry. And here we must express our conviction that the only way to promote temperance in this country, is the home-manufacture of wines, such wines as the banks of the Ohio produce, similar to those of the Rhine—light, agreeable, and not productive of drunkenness. When our people have something better than whiskey and brandy to drink, there will be no need of Maine liquor laws, which increase hypocrisy without diminishing inebriety. We need not repeat the fact of the well-known temperate habits of the inhabitants of the wine-producing countries of Europe. In the other departments of horticulture the contributions and selections are able and judicious. We are especially pleased to see the botanical portion of this journal. Too little attention is paid to this useful science; and from ignorance in this has arisen some very grave errors. We hope that Mr. Ward's labors will be properly appreciated; and from what we have seen in the two numbers already issued, we think that Dr. Warder will have reason to congratulate himself on the acquisition of such assistance. When we add that the Review contains fifty pages of reading matter, and that each number is embellished with a colored plate, it will be evident that it is very well worth the price of subscription.

New Flowers.—We have received from Mr. Buist a flower of a seedling Camellia, raised in Pittsburg by C. J. Spang, Esq. It is a large flower, double, and well imbricated, with petals of good shape and substance. The color is a pink, resembling that of Landrethii, the outer petals rather darker, the inner ones striped with white.

Mr. Peter Mackenzie's Camellia "Jenny Lind," has been sold to Messrs. E. G. Henderson & Co., St. John's Wood, London, for £200. It is certainly the finest of its class, and the price paid was not too high.

Mr. Editor—I have no intention of "mixing" in the Strawberry controversy, having neither the information nor the time requisite for a proper examination and the necessary observation and experiments, before an intelligent and reliable judgment on the subject can be rendered. But a single fact has come under my observation which I think may possibly contribute, in a slight degree, to the collection of facts, which must, in the end, definitely settle the matter one way or the other. As a "mite" in the controversy, to be cast to the side of the balance to which it may properly belong, I send it. A few seasons since, I found a single strawberry plant in my garden; how it came there I do not know, probably from seed dropped on the spot by accident. This plant was suffered to grow, and in due time blossomed and bore fruit. Now whether the blossoms were staminate or pistillate, or whether stamens and pistils were contained in the same blossom, I do not know, having never thought of examining them; but that a single plant in a garden within the quadrangle of an extensive public building, did bear fruit, I do know. My attention was called to it from the fact, that I had always understood that strawberry plants would not produce fruit, unless distinct plants of the two sexes were together or in proximity. It was not only noticed by myself, but was also regarded by others as a singular circumstance, as a sort of *lusus naturæ*. I communicate the fact just for what it is worth, no more.

J. Foster.

Phila. Feb'y, 1854.

We neglected to acknowledge the receipt last month of the "Transactions of the North-Western Fruit Growers' Association," which we found full of very interesting matter.

We are also indebted to W. S. King, Esq., for a copy of his address, from which we have made an extract this month.

Catalogue received from J. S. Downer, Elkton, Ky.

(Supplement to the "Florist.")

From the Farm Journal.

STRAWBERRY QUESTION.

Flushing, Aug. 10th, 1853.

Mr. Editor:—It is but little use for a man to reason in regard to natural objects, unless his mind has first become fairly matured, and has attained to the conclusion, (the most evident of all things,) that the Deity has prescribed a supreme and immutable law, beyond the confines of which there can never be any divergence. It is this eternal law which renders palpable and positive to our senses, the now unveiled facts of Geology, whose eternal impress of countless ages, bids the mind to scorn and contemn all the contradictory averments of frail man. The Deity, when placing man upon the earth, exercising both love and justice, generated within him an unerring guide, whenever he should call into excercise its unprejudiced perceptive and reflective powers.

The study and contemplation of the vegetable kingdom, with an ardent devotion for fifty years, have matured the conviction of my mind, that the Creator has been equally mindful of the humblest plant, and of the microscopic insect, as of the mightiest developements of his power; and in the pursuit of this and other studies, I have realized the fact, that all nature is replete with order, wisdom, harmony, and love.

Any question, therefore, inculcating a derangement of this supreme order and harmony, has already received its solution in my mind. In referring to the supreme law, it has been most eloquently remarked, by an American orator, that if gravitation were suspended but for a single moment, all nature would sink into chaos; and it may with equal truth be asserted, that if the eternal law of sexuality were susceptible of variation, there would be no end to the confusion of the races of animals and plants, and all creation would become a heterogenous and disorganized mass. And although the test of "long experience" is scoffed at by Mr. Meehan, I may still deem it worth something, when all my intelligent friends have arrived at the same conclusion as myself.

In penning my previous communications, I am not aware that I have used any unbecoming language, but I must plead guilty to somewhat impatient feelings, when I see a man professing to impart information to others, commence his operations with a palpable blunder, one equally inexcusable, whether from error or from ignorance, and then attempting to palm upon the community through the medium of

an intelligent Society, the erroneous results of his blunder as positive facts, arraigning the systematic harmony of nature; although happily the discernment of the Philadelphia Society passed over the subject without notice. Mr. M. should be aware that there are some statements and assertions, which are too weak and contemptible to admit of serious argument.

I will now proceed to discuss the points advanced by Mr. Meehan and by W. D. on the Strawberry Question, the former of which are evidently based in error, and in a confusion of *both* facts and ideas, whilst the latter has erred from misconception, and a consequent misapplication; and I respond thereto, notwithstanding I have just received a letter from the oldest and most distinguished Pomological Editor in the Union, (dated Boston,) urging me to drop the discussion as useless, since it so evidently originated through Mr. Meehan's erroneous selection of two mixed varieties in his experiments.

You will perceive that this same position was taken by me at the commencement, and also by Mr. Longworth, viz; that Mr. M. had begun with a blunder in the plants, the same as Mr. Downing had formerly done, and like the latter he had not candor enough to acknowledge his error. I trust, however, that Mr. M. will revise his operation by a new trial with genuine plants, and in such a way that there may be no room for mistake, or doubt, and all I ask of any other person is, that he will make the test for himself. Surely if Mr. M. ever did accomplish what he says he did—that is, *change pistillates to staminates*, it can be done again, for wisdom did not become extinct with his first experiment. And this last remark seems most amply verified, by the disclosure of his manifest ignorance when attempting to describe what Hovey's Seedling really is, and his acknowledgement that 'one of his finest beds of Hovey's Seedling (so called by him,) was declared by others to be Buist's Prize, or some other hermaphrodite variety;—when the former is most strongly marked, and the best known of all Strawberries, and any child ought to readily distinguish the latter by its double height, long petioles and peduncles, distinct foliage, and numerous flowers, to say nothing of its differently formed fruit and sexuality. And in his communication in the Horticulturist, he further acknowledges having planted for Hovey's Seedling a bed of Burr's New Pine, two years ago, which was about the period when the blundering commenced; and yet he has the assurance to ask of us now to believe in his immutable accuracy. The strongest argument of all, is his acknowledged mistakes, showing his plants and his ideas to be equally confused.

In regard to one of McAvoy's Strawberries referred to, as having staminate and pistillate flowers on the same plant, such is the case with a staminate seedling that has come mixed in with some parcels of McAvoy's Extra Red, and also with at least a dozen other varieties; and forms one of the phases of the hermaphrodite class, among which are the Duke of Kent's Scarlet, Eberlein, Triumph and others. The flowers of the two sexes are sometimes on the same scape, and sometimes on distinct scapes.

It seems that Mr. M. and W. D. not being aware that part of the hermaphrodite family possess this character, came to the conclusion that the plant they saw was an anomaly or sportive variation; whereas, that peculiar character is as permanent and unvariable as the other classes.

I have letters just received from Mr. Longworth and Mr. McAvoy, comfirming my views as to the invariable sexual character of the *true* Extra Red, and referring also to the spurious seedlings I have named. And as to the mention made by Mr. M. that Mr. Longworth stated to him in regard to the Extra Red, "that it is the first instance *that has come under his observation* of pistillate kinds producing hermaphrodite flowers." Mr. Longworth says in a letter to me, of the 8th inst., that *no such fact has come under his observation at all*. And such is the response of the gentleman whom Mr. M. quotes as having "raised that variety in his own garden, and under his own *acute observation*."

Mr. McAvoy goes a little further, and after the most positive denial of any sexual variation, says, I will give $50 to Mr. Meehan, or to any other person, who will change it to a staminate, and I think I know a person who will give a great deal more, *but I would select the plants myself*."

To settle the question of apparent "evasion," I will refer at once to the point in dispute. In the first place, Mr. M. stated *he had changed pistillates to staminates or perfect flowers*, by special culture as there stated. Now if flowers do thus change and become perfect, they will of course, produce fruit, that result being the only decisive test that they are perfect; and such was doubtless his meaning and actual belief, when he made his first communication, as will be evident by referring thereto, wherein he asserts, "the distinction between staminates and pistillates to be worthless, cultivation producing either the one or the other."

But in his second communication (June,) he still adheres to the same opinion as to the transmutation of sexes, but abandons what he at first declared to be the *cause*, and says "he may be in error in his opinion that the change from one sex to another was the results of cultivation." I responded, denying his premises and his alleged facts. And he having at last discovered that pistillates grown separately will not produce fruit, backs out entirely from his other position, and when I offer as a decisive test a large premium for "one perfect berry from Hovey's Seedling grown by itself," he remarks, "*Who said they could do any thing of the kind?*" Was there ever greater subterfuge and evasion? I answer that he himself said so, and meant so, in his original communication; for if he did not mean that, what did he mean, or did he mean nothing at all?

I ask then, if this query of his does not amount to a complete recantation, and an admision of the truth of my entire position? I don't much like this slipping out by degrees and by stealth, but if Mr. M. will back square out, I shall be satisfied, for the public will then know what to believe.

Mr. M. attempts some cavil in regard to Mr. Downing's having committed a similar blunder to himself, but the facts are too transparent to be misunderstood. It is not true as Mr. M. asserts, that "Mr. D's *observations* led him to the conclusion that Hovey's strawberry would by culture, become a hermaphrodite," for he had never possessed Hovey's Seedling when he made his erroneous statement. I well remember the circumstances, for immediately after his article appeared, I jumped on board a steamer and visited his grounds, and asked to see the bed of Hovey's Seedling, when, to my amazement, I was shown a very tall growing variety, with narrow oblong pointed leaflets, of a pale green colour, long scapes, large and numerous flowers, and as totally distinct from Hovey's in these and all other points as possible.

I was astounded at such a solution of the mystery, but said nothing. I obtained a few plants from that identical bed, which I brought home, and planted, and tested to my satisfaction. Immediately on my return, I announced to Mr. Huntsman and some others, the fact and we had a most hearty laugh over this mouse from the mountain, and shortly after came forth the same miraculous disclosure by the Boston Horticultural Society. The further assertion by Mr. M., that this Society "decided that the kind was not Hovey's because it was a staminate," is also untrue. They decided that it was not Hovey's because it had no one character in foliage, flower or fruit, bearing any similitude to Hovey's. Any Yankee child escaped from its cradle, would have come to the same conclusion. Mr. Downing was too shrewd not to feel the effect of so gross an error, and although, as Mr. Longworth says, he never publicly corrected it, as was his duty, he nevertheless gave the most complete proof of his own conviction, by carefully abstaining from any re-assertion of his erroneous position to the time of his death, and always seemed very desirous to keep *shady* on this point. I regret that Mr. M. should deny to him the exercise of ordinary shrewdness, by stating that Mr. Downing could never be made to understand the blunder.

Mr. M. refers also to a wager, but I have offered none. I did offer to pay a certain sum to any one, to do what he had declared he had done with ease, but without any possible gain to myself. Mr. M. should consult a dictionary, and correct his definition, for even poetry becomes foolery when it has no application. Mr. Longworth made an offer for a hermaphrodite produced by cultivation from a pistillate plant. I made an offer for "one perfect berry from Hovey's Seedling grown by itself." Now as all hermaphrodites produce fruit, the result would be identically the same, and as Mr. M. can so easily change pistillates to staminates, "*by being forced slowly in a moderate temperature*," he ought to set about it at once, and obtain the reward.

In regard to the communication from W. D., it seems very apparent that he has not taken into consideration the fact that the distinctive variations of the strawberry, as staminate, hermaphrodite, and pistillates, constitute the *normal conditions* of the plant, and that consequently any change of the primitive character would be transmutation of the identical description which he so forcibly rejects, and whose impracticability he has so lucidly expounded.

It can, therefore, bear no affinity to his quoted instance of variation in the "floral organs," arising from luxuriant culture, and their consequent susceptibility to further change.

Large and luxuriant foliage, when resulting from excited vigor, is precisely in accordance with an increase in the size or plurality of the petals, and this increase often renders flowers so double as to usurp the position of the sexual organs, and thereby prevents the production of seeds, but without in any way affecting their sexuality. As well might the development of fatness on a well-fed animal be confounded with a change of his sex.

And whilst on this subject, I would ask of W. D., in his discussion of the sportive results of culture, which are applicable to so many plants, to designate a single instance where it has resulted in a change of sex.

In regard to this question of sexuality, the strawberry is the very last plant that should have been assailed, for so distinct are the natural varieties, that staminate and pistillate plants may be almost invariably distinguished by simply comparing the number of flowers on the scapes, and even by the size of a single flower, without seeing any other part of the plant.

Mr. G. W. Huntsman can tell the sex of more than fifty varieties of strawberries by the leaf alone.

The sexual distinction in the scapes, taken from the same plant, to which W. D., alludes and which I have explained, in a previous paragraph, might well strike a casual observer as an anomaly, when not apprized of its constitutional character, but it could present no excuse to one who has been long pursuing the strawberry culture. And W. D. is greatly mistaken when he says, "It is this kind of change in the character of the flowers which I understand Mr. Meehan to announce as having occured in plants under his management." Mr. M. says no such thing, but distinctly states that *his pistillates changed to staminates or perfect flowers*, and in fact he had no knowledge when he wrote his first article, that any variety possessed the characteristics of the new seedling from McAvoy; but in May, when he first saw its bloom, he seized upon what he deemed a God-send, hoping it might answer as a scape-goat to sustain him in his erroneous dilemma, and he immediately dispatched specimens to W. D., a highly accomplished botanist, but not specially versed in the varieties of the strawberry, for the purpose of courting his aid, and thus he misled that gentleman, by being first duped himself, in a matter which he ought to have been fully conversant with for a very long period, as the Duke of Kent's Scarlet, and others possessing the same character, originated in his own country, (England,) and are enumerated in the London Horticultural Society's catalogue of 1826, and had been under culture there for many years previous.

It further appears that what Mr. M. speaks of as "*the able article*

of W. D., which so clearly sets forth his ideas," was in fact based on a mistaken conclusion, from an inspection of the scapes of the new strawberry from McAvoy, sent to W. D., by Mr. M. in May, but which neither party had ever seen a flower of at the time when Mr. M. penned his original communication, which was in the month of March. *Oh! tempora! Oh! Mores!*

It will therefore be seen, that this seeking shelter under the wing of W. D. will not absolutely prove of avail, and neither will the still more astounding curcumstance, that the arguments and comments used by W. D. in the July number of the Farm Journal, comprising points which Mr. M. had never thought of advancing, are found embodied in an article from Mr. Meehan himself, in the August number of the Horticulturist, *as original and without any credit to their author.*

In concluding my comments, I will simply state, that I have cultivated all the important varieties of the strawberry for a long period, and during the last ten years with especial attention, and I have now above one hundred and fifty varieties in my grounds, and yet, after the closest scrutiny by myself, and my neighbor, Mr. Hunstman, we have never been able to discover any sexual variation whatever.

The real causes for the discussions on this subject, have arisen from the rapidity with which runners pass from one bed to another, and the frequency of seedling plants springing up in beds differing from those already growing therein. In fact, you can scarcely go into any garden without finding some accidental mixtures from these causes.

As Mr. M., in his attempt to describe Hovey's Seedling, has shown his utter want of reliable discrimination, I will define its immutable character. Hovey's Seedling is a plant of low growth. and very distinct appearance, remarkable for its large, round, deep, glossy, green, luxuriant foliage; the petioles and peduncles short, the flowers of medium size and not numerous, pistillate, with rudimental abortive stamens, very productive, fruit too well known to need description.

Having now taken some pains to enlighten Mr. M. as to the real facts of the case under discussion I trust he will readily acquit the strawberry plants of all vacillations, and concede that they only existed in the visionary mind of the observer.

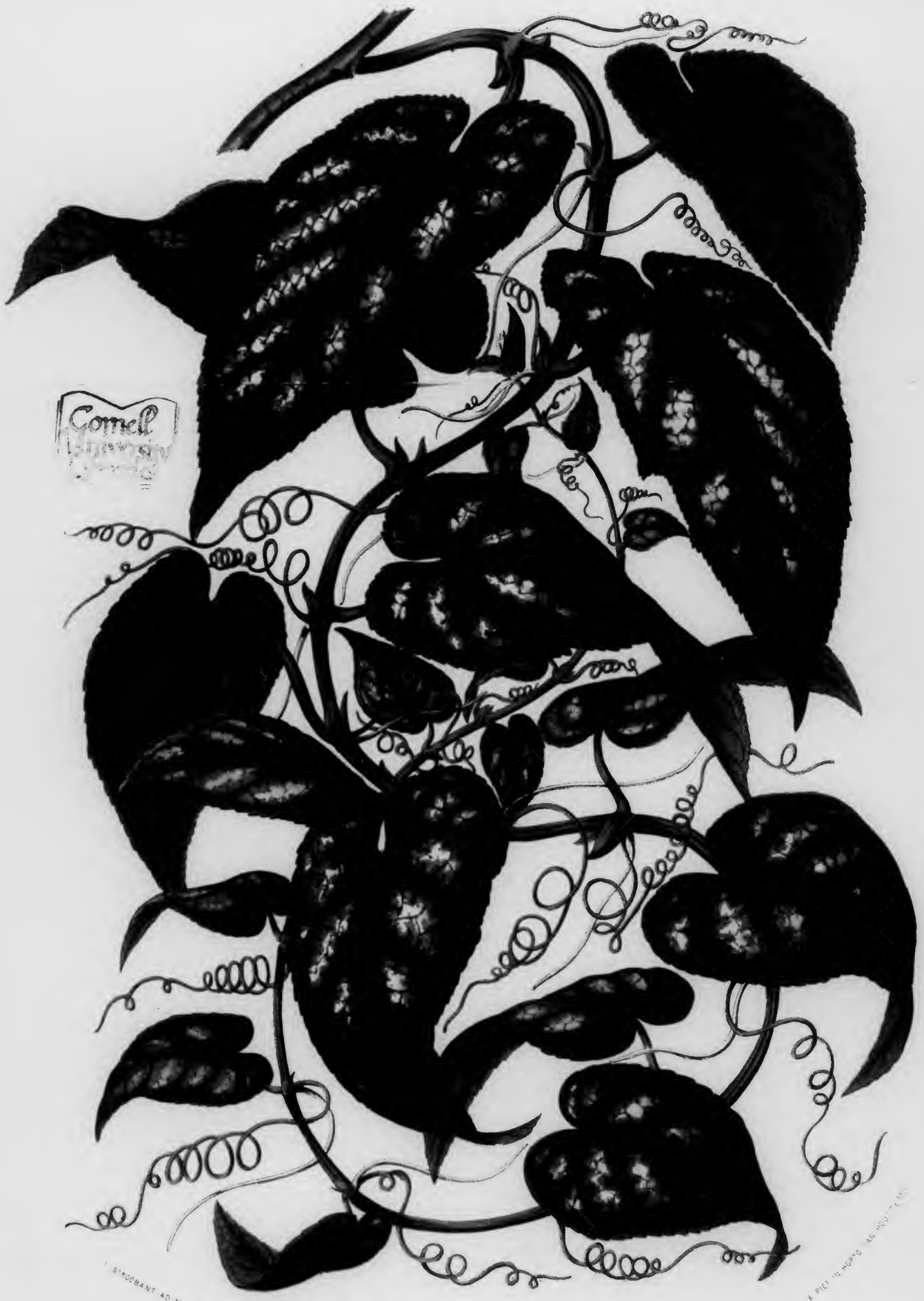
Yours most respectfully,

WM. R. PRINCE.

N. B.—Mr. Longworth has just advised me that he has "corrected Mr. Meehan's error about his views of the sexual character of the Extra Red, in Warder's Horticultural Review."

W. R. P.

COLOR PLATE



CISSUS DISCOLOR Blume

CISSUS DISCOLOR Blume

COLOR PLATE
INTENTIONAL SECOND EXPOSURE

THE FLORIST
AND HORTICULTURAL JOURNAL.

CISSUS DISCOLOR.

Ampelideæ § Vitcæ, Endl.—Tetrandria (v. Pentandria)–Monogynia.

CHARACT. GENER.—"*Calyx* liber, brevissimus, obsolete quadri—v. rarissime quinquelobus, *Corollæ* petala 4, rarissime 5, disco hypogyno extus inserta, æqualia, concava, apice cucullata, æstivatione induplicatim valvata, sub anthesi patentia, decidua. *Stamina* 4, v. rarissime 5, cum petalis inserta, iisdem opposita; *filamenta* brevia, *antheræ* biloculares, incumbentes, longitudinaliter dehiscentes. *Ovarium* liberum, disco plus minus immersum; biloculare. *Ovula* in loculis gemina, collateralia, e basi dissepimenti adscendentia, anatropa. *Stylus* brevis; *stigma* capitatum. *Bacca* uni-bilocluaris, abortu mono-disperma. *Semina* erecta, testa ossea, epidermide membranacea *Embryo* in axi albuminis dense carnosi minimus orthotropus; *radicula* infera.—

"Frutices *sarmentosi*, *scandentes*, *rarissime arbores*, *inter tropicos totius orbis*, *imprimis tamen Asiæ crescentes*, *in subtropicis multo rariores*; foliis *alternis*, *stipulatis*, *simplicibus v. compositis*, *pedatis v. rarius pinnatis bipinnatisve*, *sæpe pellucido punctatis*, *petiolatis*, petiolo *basi articulato*, *ramis floriferis oppositifoliis v. rarissime axillaribus*, *sterilibus in cirrhos conversis*, floribus *cymosis*, *sæpissime ad apicem ramulorum umbellatis*, umbellis *involucratis*, pedicillis *basi articulatis*.

CHARACT. SPECIF.—C. scandens; ramis angulatis; foliis petiolatis ovato-oblongis basi plus minus subhastato-cordatis, apice acuminatis acutis, margine remote exserteque (nunc subadpresse) denticulatis (1), 3-5 plinerviis; stipulis cordato-ovatis, obtusis; cymis terminalibus et oppositifoliis, pauci-et laxifloris, breviter pedunculatis; floribus..... post anthesim longiuscule pedicellatis; baccis magnitudine grani *Piperis nigri*, oblique subrotundis, monospermis, glaberrimis, semine crasso, superficie rugoso. (Charact. e specim. authentico Blumeano in herb. Mus Paris. elicitum.)

α *glabrescens*, Nob.—Totus glabriusculus, nervis foliorum hinc inde pilosulis.
Cissus discolor, Blume. Bijdrag. 181.

β *mollis*, Nob.—Totus tomento brevi molliter velutinus.

(1) In icone nostra dentes nimis conferti et, quam in specimininibus horti botanici parisiensis multo minus exserti.

The charming climber which we figure this month is a native of Java, whence it was lately introduced into England by Messrs. Rollinson, the nurserymen. The flowers, like most of the vine family, are small and of no beauty, but with such foliage it is beautiful without flowers. A plant was exhibited at the last annual show of the Pennsylvania Horticultural Society, held last September, in the col-

lection of J. F. Knorr, Esq., of West Philadelphia, and was universally admired. Dr. Planchon, in the *Flore des Serres*, states that there is a variableness in the botanical character of some specimens; some are nearly smooth, and others are covered with a thick, short down, which variation seems owing to differences in the atmosphere where they grow. There are, however, sufficient intermediate forms occurring between the two extremes to prevent their being described as different species.

THE PETUNIA.

BY PROF. CHAS. G. PAGE, M. D.

Flowers of easy culture are not so apt to be prized by the amateur or florist as those whose culture is attended with difficulty. The florist is influenced chiefly by pecuniary considerations, while the appreciation by the amateur is determined by circumstances which appeal to his taste, love of novelties, and excitement and emulation. The Petunia has been a neglected flower, and it has seemed to me to be true of this, as well of others, that because it had no enemies, it had but few special friends. It however has some faults, and these are first,* that the foliage when bruised has an unpleasant odor to some persons. Second, the stems and foliage are sticky to the touch and adhere together frequently. Third, it has a rambling growth, requiring considerable attention to keep it in shape and within bounds. With these premises it is but fair to enumerate its advantages. It grows readily from seeds, blooming at a very early period, it may be propagated from cuttings at any season of the year, with the utmost ease and certainty; it will bear drought or excess of moisture, it is very hardy, not injured by light frosts, enduring here in the open ground frequently until the first of December; it is *always* in bloom and will thrive in the parlor window, the greenhouse, or the hothouse, the flowers have an agreeable odor like that of the common pink; neither aphides nor red spider trouble it, and from its exuberant growth it may be pruned severely and soon worked into any desired shape. Added to these are the colors which are not surpassed in *intensity* and I had almost said in variety, by any other flower. I do not hesitate to assert my belief that in a few years the Petunia will excel every flower in cultivation for intensity, variety and combination of colors, and variety and beauty of markings. Six years ago I commenced its cultivation and at that

* The foliage of some new varieties obtained by myself has a pleasant fruit-like odor.

time there were not more than six named varieties, at least so far as I could learn from florists' catalogues and diligent inquiry. These where mostly selfs, or at least not entitled to be called variegated. The veined petunias, of which Hebe is an extravagant example, ought not be considered as variegated. They are neither striped, spotted nor mottled. The first really variegated petunias like Nobilis, Harlequin, Marbre, Variabilis, Mirabilis, Cleopatra, Fickle, etc, etc., I believe were first obtained by myself, and these by a persevering systematic and extensive work of hybridizing. The first approximation to this condition of the flower I ever saw from other cultivators was the fine variety, *Yorkville Beauty*, from Mr. Hogg, of New York. When I first commenced my experiments I found in a seed bed, some thirty at least which might have been considered varieties, in as much as they all differed, but the differences were so slight as to be of no value. At this time a good sized seed bed may contain a thousand of *such varieties*. I have now over fifty well marked, named varieties, forty of which are of my own raising. The varieties Harlequin and Nobilis each embrace several sub-varieties, the results of sporting, and are very beautiful and a great stride from the selfs. Harlequin is sometimes a light blue ground with pink and white patches, and sometimes a pink ground with blue, pink, and white patches. Nobilis is a noble flower with a rosy ground and broad white patches and spots, and changing principally in the depth and extent of color in the ground. Some varieties of Nobilis are edged with carmine, and within are variegated with white and carmine. Some other varieties are of a deep bronzed purple, some quite blue, and a yellow *petunia* is not far distinct. *Lutescens* has a centre of deep yellow, and it seems probable that this may be extended to the whole flower. Scarlet seems also probable, and that attained for bedding out, the petunia will have no rival. There is no flower offering greater facilities to the amateur for multiplication and novelties than this. It has one *style*, five *stamens*, a simple corolla, and the anthers are very accessible and easily detached, all favorable conditions for crossing. Many of the best varieties when well grown and under cover open the corolla before the pollen perfects, and it is not therefore necessary to mutilate the flower to prevent self-fecundation. If the anthers are inclined to burst before or immediately with the opening of the flower, open the flower upon the under side with the point of a knife, marking a longitudinal incision clear out to the end of the corolla, and remove the anthers. It is a waste of time and ground to sow the seed gathered from a patch in which crossing has not been performed for the purpose of obtaining new varieties, especially when we have a flower so susceptible of change by artificial means, and so easily managed in pots as the *petunia*. In a recent communication in your jour-

nal I remarked that plants out of doors were not apt to cross and were mostly subject to self-fecundation. The pollen of flowers it is true is often transported by the winds and by insects for miles, but the economy of these provisions is not for the production of crosses or new varieties, but chiefly for the intercourse of male and female flowers when borne upon separate plants or upon separate parts of the same plant (as for instance in the common Indian corn) or for self-fecundation in perfect, or as they are now called hermaphrodite flowers. Self-fecundation seems to be the first law with flowers, and the economy of winds and insects for *crossing* has been generally misapprehended. The agitation of a perfect flower by the wind or other cause throws its pollen immediately upon the stigma, and self-fecundation takes place at once and excludes super-foetation. When a bee enters a flower, if the pollen is perfect, the insect by its movements brings about self-fecundation, if it has not already taken place. It is curious to watch the movements of the humbie bee in entering the varieties of antirrhinum or snap-dragon. It pushes open the lips of the nectary which close behind him, and after rioting a while, out of sight, upon honey and pollen, he emerges from his covert retreat, having accomplished the two fold purpose of supplying his own wants and fertilizing the flower. The snap-dragon crosses and multiplies without limit, and it is all done by the bee, and happens in this way. The bee enters a flower with perfect pollen, collects it upon his thighs, he then enters a flower in which the pollen is not ripe, and so covers the *anthers* and *stigma* that the cross is effected before self-fecundation.

It is worthy of mention here that self-fecundation does not take place so readily in-doors as out; and this reminds me of a remark I have often heard, that plants will not seed well in the greenhouse. This is true as a matter of fact, but plants will fruit and seed as well in the greenhouse as anywhere else if properly fertilized. There are several reasons why they will not, if left to themselves. In the first place they are not subject to the requisite agitation to disturb the pollen at the right time; secondly, the pollen is apt to be damp and heavy, and finally the flowers take unnatural positions, preventing the pollen from falling upon the *stigma*. In pendulous flowers *naturally* the anthers are above the stigma; that is, the stamens are shorter than the styles, and in erect flowers the reverse is the case. The final cause of this obviously is that the pollen upon any agitation may fall upon the stigma. But in the greenhouse, many flowers naturally inclining downwards, will turn upwards to the light, in which case sometimes the anthers are so far below the stigma as to fail of reaching it except by special help. I have seen this beautifully exemplified in the common China primrose. Finding some plants were not seeding, I resorted to the camel's hair brush to apply the pollen to the

stigma, and the result was, that fine large seed vessels were rapidly formed. From this we deduced the importance of fertilization by agitation or otherwise, all in-door fruits and plants designated for seed bearers.

But to recur to the *Petunia*. My plan of operation has been to preserve some strong flowers, regardless of the flower, and to use the pollen from these upon the new varieties as they come on. It is generally the case with the Petunia, that as the flowers advance in variety, the habit of the plant becomes weak; hence the importance of this plan, it being understood that in hybrids the character and constitution of the foliage descends from the male, and those of the flower from the female. The King of Crimsons, known for several years in the florist's collections, had a fine Crimson flower with a black throat, and was a very desirable variety. The habit of the plant however was very weak, so much so that I have lost it entirely this winter, but in its place I have another King of Crimsons with a robust habit and foliage having a pleasant fruit-like odor. This was simply the result of crossing it with a common crimson having a robust habit.

The following list embraces my own varieties, and some of those best known.

Nobilis,	Crystal Palace,
Black Prince,	*North London,
Asterisk,	*Minerva,
Peach Blossom,	*King of Crimsons,
Cleopatra,	*Yorkville Beauty,
Nymph,	*Eclipse,
Mt Ida,	Narrows,
Cinderella,	*Smithei,
Mirabilis,	Gracilis,
Variabilis,	Pagei,
Marbre,	Œillet Flammand,
Harlequin,	Maxima Alba,
Fragrans,	*Prince of Wales,
Fickle,	*Enchantress,
Mutabilis,	Sanguinea,
Queen of Stars,	Cerulea,
Lutescens,	*Alice Peel,
Hermit,	*New Haven Beauty,
*Hebe,	Green Border.
Punctata,	

*Those marked with an asterisk are not original with me and known to *florists*.

Concerning the culture of the Petunia no one will ever be at loss. Most any tolerably good soil will answer for it. Though I have found it to bloom best in soils moderately stiff, one thing must always be observed, that to have good plants and good flowers they must be cut in closely, to check their rambling habit. The strong kinds may be trained to a wall and will attain the height of six, eight, or ten feet. It is not desirable to keep a plant over two years. In conclusion I will remark that there is a strong probability of arriving at a double petunia. I have had one perfectly double; that is, one in which the five stamens were each converted into petals, which was witnessed by Mr. Brackenridge and others in this city, but the plant which bore it was weak and the stalk failed to take root. It is reasonable to expect that this condition may be reproduced.

Washington, D. C., March, 1854.

REFLECTIONS ON THE STUDY OF BOTANY.

And Details of the mode of Reproduction of Zoosporic Algæ. Discourse pronounced before the public sitting of the Soc. Nat. His. of Cherbourg, Oct. 29, 1852.

BY M. AUGUSTE LE JOLIS.

Of all the sciences which have for their object the study of created beings, Botany is perhaps the most attractive by the nature of the objects on which its researches are carried. Thus, plants have always attracted the attention of observers whether by their brilliant flowers, their graceful and varied forms, or on account of the immense resources which they afford to man; and now especially, since the study of vegetables has become a true science having its theories and its facts, its hypotheses and its laws, the number of those who devote themselves to it has increased considerably. But although the elementary ideas of Botany are generally extended throughout the world, it must be acknowledged however, that these notions are often very vague, and even of a nature to give false idea of this science. Thence it happens that many persons who expect to find a relaxation in this study, soon renounce it, from fatigue and weariness, repelled as they are by technical and barbarous terms with which the pages of elementary works are bristling; that others for whom these difficulties have not been an obstacle, see nothing in botany but a useless mnemotechny of names and words, and regard it as unworthy of fixing the attention of a serious mind. It seems to me easy to show that these prejudices are ill-founded; but wishing to keep these reflections within narrow limits, I will content myself with indicating in a few words the real end which the botanist should propose to himself, and the means which he should employ to attain it.

The study of Botany does not consist, as is sometimes thought, in gathering more or less of plants, in giving them names more or less odd, in labelling and arranging them in an herbarium. Although the only occupation of a goodly number of persons who call and perhaps think themselves botanists, it is but a work purely material and preparatory, and which conducts to no result, if the mind of the observer does not know how to elevate itself to higher philosophic conceptions,—if, aided by the exact knowledge of facts, he does not seek to recognize the mode of action of the two fundamental laws of harmony and variety which rule all the others; the comparative study of these laws, the intelligent contemplation of the mysteries of creation—such is the real end of Botany, as of the other natural sciences.

"If Botany," says an author* "consisted only in the minute description of different parts of a plant, it would be but a cold and dry science, a barren anatomy which spoke only to the eyes and occupied but the memory. The principal object of natural history is not to know the infinitely varied form with which the creator has clothed animals and plants, nor the innumerable denominations which it has pleased men to give to these forms and to the beings which present them; true science, the only one capable of enlarging ideas, is that which tends constantly to compare with each other the most dissimilar beings, to seize not only their differences, but also their analogies, to simplify by thought the apparent complication of their structure, to bring towards a small number of primitive types the forms so multiplied and so odd which we meet in living bodies—a valuable reduction which gives the power to embrace in a rapid glance the appearance of an entire kingdom. True Botany is the philosophic and patient observation of the admirable precautions accumulated by the creator to furnish to the vegetable the means of accomplishing its destiny from the moment that the seed, soft and weak, surrounded by destructive causes, feebly pushes its two first leaves to the top of the soil, to the time when, become a giant tree, it braves its enemies of every kind and produces by thousands beings like itself."

But to be able to observe with advantage the marvellous functions executed by the organs of the plant, one must know before all things the structure of these organs; to be able to read readily in this great book of nature, it is necessary to possess the alphabet, and that alphabet is Anatomy.

The history of plants is a science so complex that it is indispensable to facilitate the study of it, to divide it into different branches, according to the different relations under which we must consider it. But it must not be lost sight of that these distinctions, necessary to the bounded intellect of man, have no reality in nature; that each one of these divisions does not form a

* Emm Le Maout, *Elementary Lessons in Botany.*

separate and complete science, and that they must all be compassed in order to form an elevated and just idea of Botany. These branches have received different names ; I will enumerate them rapidly, indicating the object which they propose.

Under the term *Organography* is included that part of Botany which studies the form and the symmetry of the organs, that is, of the numberless modifications which are presented by the roots, the stalks, the leaves, the flowers, and the fruits; *Organogeny* shows in what manner these organs develope themselves; Anatomy treats of their internal structure ; *Physiology* explains to us their functions, unveils the mechanism of their life and the mysteries of nutrition and fecundation ; it gives us an account of the movements of the leaves and flowers, their respiration, the sleep and awaking of plants. *Embryology* makes us study in the seed the rudimentary state of the vegetable which it should produce. *Teratology* gives us the key to the monstrosities, fanciful exceptions which are as often met with in the vegetable as in the animal kingdom, and of which the profound and reasoning study has thrown the strongest light on the functions and the nature of organs in the normal state. Finally *Glossology* or *Terminology*, teaches us the technical language employed in designating the organs and their modifications.

With the help of these sciences we cannot study the plant but in itself and in an isolated manner; if we wish to compare with each other appearance of vegetables, we employ *Taxonomy*, which classes them by families, by tribes as to describe species, and *Nomenclature* which makes us know the names which have been assigned to them.

To complete these studies, the knowledge of *Botanical geography* must be joined to them, which designates the stations and habitats of plants and the laws according to which they are distributed in different regions of our globe. Further it is necessary to seek out the influence exercised upon plants by different exterior causes, such as the chemical composition of soils, the action of light, of temperature and of air on the development and life of organs ; this is the object of Epirreology, a study important as the means whereby they can, for instance, calculate the quantity of heat necessary under each latitude to ripen corn and fruits, and consequently judge before hand and with certainty what are the proper cultures for each climate. In fine, a large number of plants have disappeared from the globe on account of different convulsions which have overturned it ; the botanist calling geology to his aid, refinds in the bowels of the earth imprints of their forms, contrives to recognize and reconstruct their characters, and replaces them

among the living vegetables in the place which they ought to occupy among the living beings. This is the end of *Fossil botany*.

The different parts of the science which I have just enumerated constitute Botany proper. Considered in its useful relation with man, applied Botany comprehends *Agriculture*, *Horticulture*, *Arboriculture*, *Medical* and *Industrial Botany ;* and I must remark that it is owing to the discoveries of pure science, that the old routines of cultivators have been enabled to be replaced by more rational methods, raised upon the physiological observations of facts ; at the same time, in industry, the exact determination of species can render great service, in enabling us to avoid confusions and errors, as has been proven in many examples, and as I have had occasion myself to show in the employment of the fibres of two species of *Phormium* or Flax of New Zealand.

If I did not fear becoming tedious, I would have selected in different branches of Botany, some facts recently brought to light and worthy of all your attention, whether by the utility they present, or by the philosophical reflections to which they give place, and you would have perceived that all these studies are equally prolific in interesting observations. I will confine myself to citing one only of these facts, and I will select in precisely that part of the science which at the first view seems the driest; I will not take for a subject of study, one of those flowers attractive by their brilliant colours their sweet perfumes, or the elegance of their forms; I will entertain you with a vegetable production which is generally regarded with contempt, often indeed with disgust—in a word, I will speak of that green slime which attaches itself to sunken wood, which floats on the surface of still water, grows at the bottom of streams or in the crevices of our maritime rocks ; and perhaps you will be convinced that the study of an humble plant can serve as the theme of the highest considerations of natural philosophy.

Under the common name of slime, we are generally accustomed to designate and to confound a great number of plants of very different structures but which all belong to the class called Algæ. Let us take a little tuft of a certain species ; we see at the first glance that it is composed of a compact mass of threads very much bound together, of which each one constitutes a complete plant. Let us submit one of these threads to the magnifying influence of a microscope ; we will see that it consists of a tube, hollow, transparent and filled with a green matter to which the plant owes its colour. When it has arrived at that period of its life when, conformably to the general laws of nature, it ought to reproduce and multiply itself, the green matter agglomerates in the interior of the tube, and there organizes itself under

the form of little grains which become more and more distinct, and among which an extraordinary activity soon manifests itself. Soon the tube breaks to make a passage for the granules; these escape with impetuosity and all at once, except some which wander along the sides until they find an orifice by which they can get out. The mass of the granules is spread out like a cloud in the surrounding water where they whirl about with such a rapidity (liveliness) that an ant hill or a swarm of bees can give but a feeble idea of it: and on account of the promptitude of these movements, it would be very difficult to recognise their forms, if they were not rendered immovable by being killed by a drop of acid or of water of iodine: the iodine colouring them brown, has the advantage of making their organs more visible, and as the action of the poison arrests them suddenly in the different attitudes which they have taken, we can now examine them under every aspect and make for ourselves an exact idea of their form.

We see then, that these diminutive bodies have the form of an egg or of a top, the larger part is occupied by the green matter; the anterior extremity is colorless, terminated by a kind of beak, near which is seen a reddish point analogous to the eyes of the infusoriæ: this beak is furnished besides with several vibrating hairs, which perform the offices of feet or fins, and by means of which they move with that rapidity which astonishes lookers-on.

These little beings then furnished with an apparatus of locomotion, can be classed in the animal kingdom, as this character has generally been regarded as sufficient to distinguish animals from plants.

Let us now examine some of these bodies which we have not killed by iodine. We shall see that after a certain time their movements become less and less rapid; by and by we see them fix themselves by their beak to the side of the vase in which we have observed them; their swimming hairs become useless, detach themselves and disappear; their anterior extremity developes and prolongs itself into a tube, and, in a few moments, the animal is transformed into a plant like that which gave it birth, a plant which passes through the same phases of vegetation and which does not omit in its turn to push forth its myriads of reproductive animals.

These beings to which they have given the name of *Zoospores*, that is, animal seeds, have been noticed, sometime since, but in a very imperfect manner, in some *confervæ* of fresh water. Recent observations have shown that the greater part of the Algæ, even the great Laminariæ of our coasts, reproduce themselves by means of Zoospores, and this discovery, as well as the deep study of these reproductive bodies is due to the deep study of one of our colleagues, M. G. Thuret, whose magnificent works on the Zoospores

and the Antherides of the Algæ, have been worthily recompensed by the great prize of natural sciences at the Institute of France.

My learned friend having been kind enough to initiate me into some of his studies, I can offer myself as a witness of the phenomena which I have just noticed. I should add that to see well the Zoospores, whose dimensions scarcely attain the length of a 200th part of a milimetre, it is necssary to employ very powerful microscopes, furnished with lenses of 5 to 6 and even 800 diameters, which consequently produce an enlargement in volume of 512 millions of times.

Besides the Zoospores, we still find in certain Algæ as well as in the mosses, ferns and other cryptogamia, animalculæ of a different nature, whose presence seems necessary to reproduction, and which they have named Antherozoids or Spermatozoids, on account of their analogy with the spermatozoa of animals. These spermatozoids are also furnished with vibratory threads and move with rapidity, but they die at the end of a certain time without developing themselves into a new plant as the Zoospores do. The faculty of germination is therefore the most proper character to distinguish these last from the infusorial animalculæ, with which they have otherwise a great resemblance.

The Zoospores swim generally beak forward, sometimes they return suddenly backwards or pirouette upon themselves. They are most very sensitive to the action of the light; when we bring towards a window a vase full of water and containing Zoospores, we see them direct themselves rapidly to the lighter side: at other times on the contrary they seem to fly the light and hide themselves the darkest place. Their vibratory movements last for several hours, often even many days, before germination commences. We can, as I have said, stop them instantly by means of acid, alcohol, ammonia or iodine; opium having a less prompt action, quiets their movements gradually and permits us to distinguish the play of the threads.

Besides the faculty of moving, the Zoospores have besides that of contracting; thus we see that being stopped by the middle of their bodies during their exit from the tube, they curve their anterior extremity from one side to the other and contract violently in every direction, until they have overcome the obstacle which stops them. But, lately, after vainly sought a character which could serve to distinguish definitely plants from animals, we have thought that we should regard contractibily as the exclusive apanage of the latter. The Zoospores which by their germination faculty evidently belong to the vegetable kingdom by properties which are even more evident in them than in many infusorial animalculæ. "The extreme analogy of lower animals and vegetables does not then permit us to trace a precise line of demar

cation between the two branches of the organic kingdom. As we descend the scale of beings the distinctive characters of animals and vegetables tend to efface themselves, and we arrive at last at those ambiguous productions which the observer hesitates to class in one or the other; for to whatever kingdom we wish to refer them they will always have the narrowest connection with the neighbouring one." The pretended destinctive characters which are true as long as we only apply them to perfect animals and vegetables, cease to be so when the organization lowers and simplifies itself. Is not this transformation from animal into plant and from plant into animal reciprocal passage from one kingdom to another, a magnificent subject of study and worthy of profound meditation for the naturalist; is it not a new proof of the principle developed by the powerful genius of Linne, when he wrote these words, prophetic then and since become an axiom, *Natura non agit per saltum:*

Everything connects itself; everything from man the most perfect animal, to the being placed lowest in the scale of creation; all are linked by transitions which in most cases escape the feebleness of our understanding; and the discoveries which modern science ought with just title to be proud of, these discoveries can all be expressed in a single law; *Infinite variety of forms, incessant transformation of organs, but, Absolute Unity in the work of the Creator God.*

INDIGENOUS PLANTS.

The perennial section of these plants is not so generally cultivated as it deserves. Many of them demand a place in the flower garden, if for nothing else than the beauty of their florescence, laying aside several adaptabilities which they possess for such a place; but very seldom do many of them find a place there. Perhaps the principal reason for this is, that there are few, if any commercial establishments where a regular assortment is kept for sale, therefore the lover of wild things has very limited opportunities to procure them, except what he can procure in his own locality. He must take to the woods and dales and gather them from their native habitation, which is not always convenient to those who are pinched for time. A small collection will give a succession of flowers for eight months in the year, some flower very early and others very late in the season, and many will flourish in places where but few other plants will; exposed and shady, dry and wet situations may be planted with the sorts best suited for them. But it is not my intention at present to enter upon the subject in a large way, as circumstances

have never permitted me to take a regular botanical tour in this section of the country, so that I cannot speak with accuracy of its riches further than of what relates to my own immediate neighbourhood; so as you are a lover of wild plants, I will, to give you some idea of what grows here, annex a list of a few which I have found growing along the banks of Pine creek, in less than a mile; there are a great many more to be found in the same space, but these I consider most worthy of cultivation.

Apocynum androsmœfolium, flowers rose colored.
Aquilegia canadensis, flowers scarlet and yellow, beautiful in cultivation.
Cassia marilandica, yellow flowering.
Campanula americana, flowers blue.
Dicentra cucullaria, a delicate little plant with cream colored flowers.
Erythronium americanum, yellow flowers.
Geranium maculatum, flowers purple.
Hepatica triloba, flowers purpleish, among the first of spring flowers.
Hedyotis cerulea, very delicate little plant, producing in spring a profusion of bright blue blossoms; beautiful growing among the grass on the lawn.
Lobelia cardinalis, flowers red, very showy.
Lilium Philadelphicum, orange color.
Mertensia Virginica, flowers purplish blue, very showy in cultivation.
Oxalis violacea, flowers violet color.
Penstemon pubescens, light blue flowers.
Polemonium reptans, bule flowering.
Phlox divaricata, pale lilac flowers.
Saponaria officinalis, flowers flesh color.
Silene virginica, crimson flowered.
Spigelia marilandica, a very showy plant with scarlet flowers.
Thalictrum anemonoides, pretty little plant, flowers white.
Vicia cracca, flowers blue and purple.
Sanguinaria canadensis, flowers white.
Saxifragra virginiensis, a low growing plant, flowers white.
Sisyrinchium anceps, flowers blue.

ETNA.

We are glad to receive the above communication from our correspondent in Alleghany County, and hope that he will imitated by the others of our friends who live in the different parts of the country.

We shall also be glad to exchange plants with any one, as we wish to collect all the most desirable natives—especially the orchidaceous plants: these are more easily cultivated than is generally supposed. We have five species

of American Cypripedia, two Spiranthes, Malaxis liliifolia, which we find no difficulty in keeping ; the latter the writer found in bloom last summer, carried it nearly two days in his botany box, took it home and planted it and it is now coming into bloom in a greenhouse. There are many herbaceous perennials which would ornament our grounds, some of the best of which are mentioned above ; and all can be easily obtained.

On the Means of Multiplying the Smaller Birds Around our Dwellings. By Wilson Flagg.

The presence of birds as companions of a country residence is considered by all a desirable circumstance, second only to woods, flowers, green fields, and the general advantages of prospect. Without birds the landscape, if not wanting in beauty, would lack something which is necessary to the happiness of all men who are elevated above a state of gross sensualism. It is indeed highly probable that nature owes more to the lively motions, songs and chattering of birds, for the influence of her charms, than to any other single accompaniment of terrestrial scenery. They are so intimately associated with all that is delightful in field and forest, with our early walks in the morning, our rest at noonday, and our meditations at sunset, with the trees that spread their branches over our heads, and the vines and delicate mosses at our feet, that it is difficult to think of the one apart from the others. Through the voices of birds nature may be said to speak to us, and without them she would be but a dumb companion, whose beauty could hardly be felt.

It is customary, when speaking of the advantages of birds, to treat of them as they have relation to the agricultural interest. Admitting the value of almost every species as destroyers of insects, I am disposed to consider their importance in this respect as only secondary to that which regards their pleasant companionship with man. Hence it is a matter of no small consequence to use the best means that have been discovered, to preserve the birds from destruction, and to multiply them about our dwellings. Very little attention has been paid to this subject. A few laws have been made for their preservation ; but these have seldom been enforced. Occasionally a paragraph in the newspapers has pleaded for their protection ; but as yet no full and elaborate essay, devoted to this object, has made its appearance. I believe the farmer would promote his own thrift by extending a watchful care over the lives of every species of birds ; but the smaller tribes are considered the most useful. And it would seem as if nature had given them their beauty of plumage, and endowed them with song, on purpose to render them attractive, that man might thereby be induced to preserve a race of creatures so necessary to his pleasures, and so valuable to his interest.

There are two methods of preserving the birds ; the first consists in omitting to destroy them ; the second in promoting the growth of certain trees, shrubs and other plants on which they depend for shelter and subsistence. The birds considered in relation to trees and shrubbery, may be divided into two classes. First, the familiar birds that live in our orchards and gardens, and increase in numbers in proportion as the woods are cleared, and the lands devoted to tillage. To this class belong several of our sparrows, the wren, the blue-bird, the American robin, the bobolink, the linnet, the yellow-bird, and some others. The second are less familiar birds that frequent the woods and wild pastures, and which would probably be exterminated by reducing the whole forest to park or tillage. Among these may be named the little wood-sparrow, one of the sweetest American songsters, nearly all the thrushes, the towee finch, and many of the *sylvias*, and woodpeckers.

To preserve the first of these species little is necessary to be done except to avoid destroying them : but to insure the multiplication of the second, we must study their haunts, the substances provided by nature for their food, the plants that afford them shelter, and to a certain extent labor to preserve all these for their use. The little brown sparrow is never heard in the heart of our villages, unless they are closely surrounded by woods. Yet this bird does not live in the woods. He frequents the pastures which are overgrown with wild shrubs, and their undergrowth of vines, mosses and ferns that unite them imperceptibly with the green sward by which they are surrounded. He is always found in the whortleberry pastures, and probably makes his repast on these simple fruits in their season. He builds his nest on the ground, in a mossy knoll, under the protection of a thicket. Every bird is more or less attached to a particular character of grounds and shrubbery ; and if we destroy this character, we drive this particular species from our neighbourhood, to seek in other places its natural habitats. Hence we may account for the comparative silence that pervades the grounds of some of our most admired country seats ; for with respect to the wants of our most familiar birds, it is possible that cultivation may be carried too far.

There is no danger that, for many years to come, our lands will be so entirely stripped of their native growth of herbs, trees and shrubs, as to leave the birds without their natural shelter. But there is danger that they may be wholly driven out of particular localities, and that the inhabitants may thereby be deprived of the presence of many delightful warblers. In these densely populated districts, the want of them would be the more painfully felt, because they contain a greater number of cultivated people who can ap-

preciate the blessings of nature. Let us then proceed in our inquiry concerning the means by which we may multiply the birds around our habitations.

In every locality in which all the native species of birds are abundant, we find the following conditions :—First, there is a large proportion of cultivated land, numerous and thrifty orchards, extensive fields of grass and grain, all well provided with water-courses. When these conditions are present, the familiar birds already named will be numerous. If these cultivated lands are well intermingled with pastures abounding in the thickets and wild shrubberry, and all the indigenous undergrowth belonging to the same, we may then hear the voices of the less familiar birds, which are in many respects superior in song to the tenants of our orchards and gardens. Wild shrubbery and its carpet of grasses, vines, and mosses, and other cryptogamous plants, form the condition that is necessary to the preservation of the half-familiar tribes. If, with all these circumstances, the land has a good proportion of wood in its primitive state, or in one resembling it, not divested of its undergrowth, containing a very large variety of oaks, maples, pines, junipers, sumachs and cornels, we may find the wood-thrush, the hermit-thrush, the red-start, the oven-bird, the creeper, the jay, and woodpeckers of various species whose habitats are the wild-woods.

Among the shrubs that are most useful to the birds may be named in general all that produce a wholesome seed or fruit. The viburnums, the cornels, all the species of the whortleberry tribe, the elder, *Celastrus scandens* and the common sumachs are always abundant where there are goodly numbers of the less familiar birds. Among the herbs and smaller plants that are useful to them are the Solomon's seal, the partridge berry, the *Michella repens*, the dew-berry, or ever-green blackberry, and all the indigenous grasses. If we clear our woods of their undergrowth, and convert them into parks, we do in the same proportion diminish the numbers of certain species of birds. A partial clearing is undoubtedly beneficial even to the most solitary tribes, by promoting a greater variety of vegetation. But the removal of all this miscellaneous undergrowth would serve as effectually to banish the red-thrush, the cat-bird, the wood and hermit thrush, and many species of *sylvias*, as we should extirpate the squirrels by destroying all the oaks, beeches, hazles, hickories and chestnuts.

One of the principal ornaments of a country seat is lawn. A smooth shaven green is delightful to the eye, at all times, especially when just emerging from the city, or after one has been for some hours rambling among the rude scenes of nature. But lawn is a luxury that is obtained at the expense of all birds that nestle in the ground and the low shrubbery.

The scythe may be as great an exterminator of such birds, as the gun of the fowler. The song-sparrows build their nest upon the ground, in the most familiar places, where they can feel secure from disturbance. Not a rod from our dwellings these little birds may have their nests, if the right conditions are there. They are commonly built on the side of a mound, where the grasses and mosses are overrun with blackberry vines and wild rose bushes. Familiar as they are, they do not nestle among exotics. He who would entice them to breed in his enclosures must not be too particular in preserving that kind of neatness in his grounds, which consists in eradicating every native shrub and wild briar, as a useless weed.

Hedge-rows, though often ignorantly supposed to be the nurseries of birds, are really great checks to their multiplication. A hedge-row cannot be well maintained without care in keeping its roots clear of grass and other herbage, which are important to their wants; and the habit of clipping it renders it almost barren of fruit. I am inclined to think that, for picturesque effects, no less than for the benefit of the birds, the most desirable fence is one made of rough small timber passed through upright posts. I would then encourage the growth of all kinds of native shrubbery, on each side of it, forming a miscellaneous hedge, the more agreeable because unshorn by art. It is this spontaneous growth of shrubbery and other wild plants that constitutes one of the picturesque charms of the old New England stonewall. We seldom see one that is not covered on each side, more or less, with roses, brambles, spiræa, viburnums and other native vines and shrubs, so that in some of our open fields, the stone-walls, with their accompaniment of vines, flowers and shrubbery are the most attractive objects in the landscape. Along the base of these walls, where the plough does not reach, nature calls out the rue-leaved anemone, the violet, the cranesbill, the bell-wort, the delicate pink convolvulus, and many other native flowers of exceeding beauty, while the rest of the field is devoted to tillage.

An ignorant agricultural boor, whose mind was never taught to stray beyond the barn-yard or potato patch, might grudge nature this narrow strip on each side of his fences, though she never fails to crowd it with beauty. I have seen indeed intelligent farmers who seemed to consider it an offence against neatness and order to allow nature these little privileges, and who employed their hired men to keep down every plant that dared to peep out from underneath the fence, without a license from the cultivator. By encouraging this miscellaneous growth of woody and herbaceous plants on each side of every rustic fence, we provide an important means of security for the birds, and supply them, in the close vicinity of our dwellings, with an abundance of those seeds and berries which are necessary for their subsistence.

Such a miscellaneous hedge-row would constitutue a perfect aviary for certain species of birds; and the advantages they would confer upon the farmer, by ridding his land of noxious insects, would amply compensate for the space thus left unimproved. The farmer seldom raises any crops in this narrow space; but like the dog in the manger, he neither uses it himself nor will he leave it to nature and the birds. Once in two or three years, he lets a fire run over it; or at any expense which is entirely useless to himself, he wantonly cuts down every beautiful thing that springs up there to remind him, while employed in the labors of the field, of the primitive charms of nature.

A common hedge-row would employ as much space as this rustic fence, including the plants on each side of it; and no clipped hedge-row could be made half so beautiful as one formed by this wild thicket of vines and bushes, growing at liberty, and wreathing an endless variety of blossoms and foliage around and over the fence. Then might we hear the notes of the woodsparrow and the yellow throat in the very centre of our villages, and hundreds of little birds of different species would cheer us by their warbling, where at present only an occasional solitary one is seen. From the windows of our dwelling-houses we might also observe the habits of many rare birds that would soon acquire an unwonted familiarity, by having their abodes in the busy neighbourhood of man.

By thus extending our protection to the birds we make no sacrifice of land, and we lay the foundation for certain contrasts, that must effect every beholder with a pleasing emotion. A happy contrast is one of the most striking circumstances either in a landscape or a work of art. Hence rugged hills, rising suddenly out of a level and fertile plain, are more effective than general undulations of surface: and how much soever we may admire a tract of land in a high state of improvement, it is delightful while rambling over it to find a little minature wilderness, or a plat of ground covered with the spontaneous productions of nature. It is equally pleasing, on the other hand, when we are roaming a forest, where the only birds we hear are the shy and timid thrushes and sylvias, to encounter a little farm in a perfect state of cultivation, and a neat little cottage, surrounded by these familiar birds of our orchards and gardens. These strips of wild vegetation bordering the fences would form a pleasant contrast with the cultivated lands, and the contrast would be beautiful in proportion to the entire primitive character of the one and the high state of improvement of the other.

From the earliest period of our history, it has been customary among our people to encourage the multiplication of swallows, by the erection of a bird-

houses in their gardens and enclosures. This custom was probably derived from the aborigines, who were in the habit of furnishing a hospitable retreat for the purple martin, by fixing hollow gourds or calabashes upon the branches of trees near their cabins. It is generally believed that these active little birds serve, by their unceasing annoyances, to drive away the hawks and crows from their vicinity, performing thereby an essential service to the farmer. This pleasing and useful custom has of late years grown unaccountably into disuse. The chattering of swallows is one of the delightful accompaniments of a vernal morning; and that of the martin, in particular, is the most enlivening of all sounds from animated nature. As the birds of the swallow-tribe subsist upon insects that inhabit the atmosphere, it is not in our power to increase their means of subsistence. Hence the only means we can use for increasing their numbers is to supply them with a shelter and retreat. By such appliances it would be easy to keep their numbers up to a level with the quantities of insects that constitute their prey.

The wren and the blue-bird are encouraged by similar accommodations. But as these birds are not social in their habits, a separate box must be supplied for each pair of birds. The wren is an indefatigable destroyer of insects, and one of the most interesting of our familiar songsters, singing like the riser, during the heat of the day, when most other birds are silent. The blue-bird, which is hardly less familiar, delights in the hollow branch of an old tree in the orchard, but would be equally satisfied with an artificial imitation of the rude conveniences supplied him by nature.

If we observe all these requirements, when employed in tilling a farm or in laying out a country-seat, we do but avoid the destruction of those beautiful relations which nature has established through the earth. The plough and the scythe may do their work for man, without interfering with the wants of those creatures whom nature has appointed as the enliveners of his toil. Every estate might be made to represent the whole country, in its tilled fields and cultivated lawn, with their proper admixture of forest, thicket and primitive herbage. Then, while sitting at our windows, the eye would be delighted by the sight of little coppices of wild shrubbery, with their undergrowth of mosses, ferns and Christmas evergreens, rising in the midst of the smooth lawn, and in charming opposition to the flower-beds, that are distributed in other parts of the ground. In these miniature wilds, the small birds would find a shelter, suited to all their wants and instincts, and in return for our hospitality, would act as the sentinels of our orchards and gardens, and the musicians to attend us in our daily labor and recreations.

Beverly, March, 1854.—*Hovey's Magazine.*

CALENDAR OF OPERATIONS.

FRUIT.

GRAPES.—Among the various systems of training and pruning grapes it seems there are scarcely two authorities alike. This is much to be regretted, and arises chiefly from the fact that the grape *will* produce more or less under any system of management, consequently those who make a first essay, if they can procure even a miserable crop, are so overjoyed with their success that they extol it to the skies, and chronicle their great success as proceeding from some trifling circumstance or other, which is henceforth considered indispensable. "These grape vines will never do any good, because they are planted inside the house," was a remark made in our hearing by one who wished to be considered an authority in these matters, having planted a few acres of vineyard. "You leave your young wood too long for the first year," says another, who reads in the books that vines should not be allowed to fruit until the third year after planting, overlooking the fact that a well managed plant will be in better condition for fruiting in its second year than a neglected one in its fourth. We have heard remarks similar to the above made in cases reminding one of the commissioned officer of six months' standing, instructing the private veteran of many battles how to handle his musket. We propose to offer a few remarks upon the various systems of pruning; and before proceeding to details a few preliminary remarks will be necessary.

When a seed germinates, its first effort is to lengthen downwards into the soil and upwards into the air; the starch contained in the seed affords sufficient nourishment for this process. The plant being now formed will henceforth derive its food from the air and soil, the young roots immediately begin to absorb nutriment from the earth, which passes into the stem and leaves, where it undergoes decomposition, is then returned downwards to the roots, extending their formation. The carbonic acid and other matters that enter the system of the plant through the roots, are of no value until decomposed by the leaves. This relative action continues during the growth of the plant, the increase in size, the quantity of its secretions and extension of roots are the result either of immediate or previous elaborating functions of foliage.

Such is the generally recognised process of vegetable growth. Leaves are the principal agents; any system of pruning, therefore, that involves their removal must exercise a corresponding check of root growth; and if these principles are kept in view, we shall be better able to discuss the merits of pruning in all its modifications.

The spur system of pruning is advocated and practiced by many at the present time. This may arise from its simplicity, certainly not from any physiological superiority it possesses. According to this method, a single shoot is encouraged until it reaches the desired length, the bearing shoots proceeding at intervals in its length, these shoots being annually pruned down to one eye or bud from which the shoot bearing the future crop proceeds. During growth the points of these shoots are pinched out at one or two leaves beyond the fruit, and all future efforts at growth are watchfully removed. This is done in order to concentrate the sap and fill up the lower eyes, with a view also of benefitting the present crops; for the same reason the leading shoot is likewise prevented from extending. The whole system involves a continual suppression of growth, and as a natural consequence the roots are also checked, they cease to extend, become more woody at the extremities and lose their power of absorption. A young plant strongly established in a well prepared border, will continue in health and productiveness for several years under this treatment, but they are gradually weakened and fail to burst into growth with that vigor which they did in their early days. We think this statement will be endorsed by all experienced grape growers who have practised the system.

STRAWBERRIES.—In preparing ground for a plantation, deep working and manuring is the first consideration; no plant repays extra care more certainly than the Strawberry, and perhaps there is none les satisfactory under poor treatment. It has proved that the finest Pine Strawberries of Europe can be raised in equal perfection in this climate, if properly cultivated; deep rich soil, and mulching in dry weather is all that is required. Notwithstanding that much has been said about their sexual character, many good cultivators pay no attention to the matter. The young plants will strike root readily at this season, and if the soil is stirred frequently and mulched when dry weather comes on, they will establish themselves well, and produce a heavy crop the following season.

PEARS—Those grafted on the quince require a deep, rich soil to attain their greatest perfection. There is no more pleasing occupation for the amateur in fruits than attending to a collection of dwarf Pear trees. Having in his eye the symmetrical proportions of a pyramidal-formed tree clothed with foliage from the ground upwards, he will now be bending down strong shoots and elevating weak ones, to equalize their conditions; and as growth advances those shoots likely to take a lead and disarrange the equality of growth, will have their extremities pinched out. S. B.

Flower Garden.—In our Monthly chats with the readers of the Florist, it

has been our aim rather to encourage them to think of what should be done in the future, than to point out at the moment the precise operations to be performed. Those therefore, who have all along followed us will be prepared now to *act*. This month and next is essentially the month for action with the florist, so that it will be to the advantage of both writer and reader, that what has to be said, should be said in the fewest words.

We are often asked whether plants and flowers should be pruned and watered when transplanted at this season. In some cases these are beneficial, in others injurious. If a tree or shrub have good roots, and the weather is not very hot, it is injurious either to water or prune, but if it have few roots in proportion to its size, then we may both prune and water. Pruning and watering, are like medicines to a man ; necessities it were well to avoid, but when used, used with caution. The best conditions for a transplanted tree or shrub, is when the ground is moist and warm,—moist, to supply the evaporation of the shoots and leaves—warm, to encourage a speedy formation of roots. But watering cools the soil, and by its gravity presess out the air from the soil, making it liable to become more easily dry again than if it had not been watered—keeping the moisture in the soil by shading or mulching while it is moist, is therefore preferable to watering in all cases ; the object being to prevent the escape of moisture, rather than to supply it after it is once gone. The only time to prune, then, is when the proportion of roots to branches is so small, that no amount of moisture would be sufficient to keep the wood from shrivelling, and the only time to water is when with good roots, the tree or shrub seems likely to wither away. This may be kept in view while planting out flowers—not to plant them too thick with the view of shading the ground, for the greater number of roots in the same space to seek for moisture will defeat the object, but rather to intermix *trailers* with erect growing kinds ; and where masses of one kind are planted, peg the shoots over the beds till the whole ground is covered. In sowing annuals also, beware of putting too much seed in one spot ; and after they come up, five or six plants are enough to leave to grow ; two or three to tie *up* neatly to neat stakes, the rest to peg on the ground around the others—not only does this prove of advantage to the plants, but the conical appearance given when in flower is pretty. We have seen Dahlias grown in very dry soil in this way, they would do at all in no other. There are few things so pretty as pyramidal forms in gardens, and the pyramidal asters so popular just now in France and England, will no doubt be much sought after this season. In our own grounds last season they were the most beautiful objects we possessed, and we are convinced that few gardens, except the wettest or very driest, will bear to be in competition with its neighbour, adorned with a few of these new "Queen Margarets."

Very beautiful pyramidal objects can be formed of climbing annuals. The Cypress Vine is scarcely excelled. There is a white as well as a crimson variety, and the two sown together make a good contrast. The Tropæolum canariense, or canary bird flower, also does well as a yellow ; but the trellis should be made of fine copper wire, or of twiggy branches, or it will not be able to go up unassisted as it climbs by its leaves. The white Thunbergia is another fine object ; the orange and buff varieties are not far behind in beauty. These things can all be sown about the first week in May, along with globe amaranths, Balsams, and so on.

Green House.—As soon as all danger of frost is over, we *must* turn some things out into the borders ; whether the change for them is too sudden or not. Physiologists and philosophers may tell us about the pores and stomates, and checks to perspiration and so on, which may be all true, but out they must go—John Jones' house was gay all last season with fine specimens of half tender soft wooded things, which in the cool of the mornings and evenings afforded immense gratification to all who saw it, while ours "wasn't nothing." We cant grow specimens with things crowded this way. We'll put out the hardiest first ; and as we get room pot some Pentas Carnea, Begonias, Cestrums, Habrothamnus, Vincas, Balsamina, Torenias, something in short, that will not do quite so well out of doors, and at the same time make a little show. If we resolve to do this, it is well to get some climbers to run up the rafters to make a little shade. We have a fine catalogue to select from if we are not too much struck with the mania for novelties. The old *Solanum jasminoides* I class A. No 1. No manner of treatment short of total neglect affects it—no bugs, nor, I believe red spider, care about it, and when it has root room, grows prodigiously.

The different kinds of Passion flowers are good for this purpose, but for the army of bugs which prey upon them. Bignonia jasminoides does pretty well, and indeed most of the tribe, if the house is not too cold in winter.

Vegetable Garden.—March and the early part of April, does not call for more attention here than the next month. Lima Beans, Corn, Egg Plants, Melons, Cucumbers, Tomatoes, Peppers, Okra, all must be in by the middle of May. If not in already, lose no time with every other kind of spring sown vegetable—choosing the richest ground for Potatoes, Peas, Radish, Lettuce, Cabbage, and Tomatoes ; the next best for Bush Beans, Peppers, Corn, Cucumbers, and Melons, and the lightest for Lima Beans, Egg Plants, Carrots, Beets, and Okra. The Onion does best on soils rather poor, in the ordinary sense of the word, but rich in mineral manures, as lime or wood ashes. The Parsnep does best in a strong stony soil. T. J.

PENNSYLVANIA HORTICULTURAL SOCIETY.

The stated meeting of this Society was held on Tuesday evening March 21, 1854—Robert Cornelius, Vice President, in the chair.

The following premiums were awarded by the Committee on plants, and flowers—*Azalea*, Specimen plant, for the best to John Pollock, gardener to James Dundas: *Azaleas*, dwarf varieties three plants, for the best, to Robert Buist. *Collection* of 12 plants for the best, to R. Buist. *Specimen Plant* for the best, the *Begonia manicata*, to R. Buist; for the second best, *Allamanda nereifolia*, to Jerome Graff, gardener to Caleb Cope. A special premium of $2,00 to R. Buist for a beautifully bloomed plant of *Conoclinum ianthinum*. *New Plant* shown for the first time a premium of $3,00 for *Dendrobium aggregatum* to J. Graff; *Bouquets*, pair, for the hand for the best to the same. The attention of the society was called to the Camellia japonica var: "Ellen," a prize seedling of Peter Mackenzie, it is still considered a very superior flower.

By the Committee on Fruits a special premium of two dollars for a dish of Strawberries, to J. Graff.

By the Committee on Vegetables.—*Lettuce*, six heads, for the best, to Thos. Meghran, gardener to Wm. S. Stewart, Torresdale. *Vegetables.*—Display by an amateur, for the best to the same. The Committee called the attention of the Society to a dish of Tomatoes shown by Wm. Johns.

Letters addressed to Dr. W. D. Brinckle were read, from J. Vick, Jr., of Rochester N. Y., presenting to the Society the volume of the Horticulturist for 1853: from Chas. Downing, Newburg, N. Y. presenting Elliot's Fruit Book; from Mrs. Catharine Stanley, East Hartford Conn. presenting "Cours Elementaire d'Arboriculture, by M. A. DuBreuil," in 2 volumes, and the "Flora of Pennsylvania" was received as the gift of the author, H. R. Noll, Lewistown, Pa., when, on motion, ordered, that the thanks of the Society be tendered each of the donors respectively for their acceptable gifts, and the books be placed in a Library.

Members Elected—Henry L. Tripler. To *Honorary and Corresponding membership*—Louis Edward Berkmans, (late of Belgium) Plainfield, N. Jersey.

Objects Exhibited.—Plants by R Buist—*New* Conoclinum ianthinum, Azalea var. Triumphant, nova blanche, Ebutii; Specimen plants—Begonia manicata, Geranium symmetry; Bletia Tankervilleæ, Franciscea eximia, Geranium Royalist, Chorozema varium, Kennedya monophylla, Deutzia gracilis, Mimulus Jupiter, Epacris miniata, Cineraria Mary Anne, C. Duke of Wellington, Cytisus hybrida; Azalea Speciosa.

By John Pollock, gardener to Jas. Dundas, a fine Azalea variegata.

By Jerome Graff, gardener to C. Cope, *New* Dendrobium aggregatum Chysis bractescens; specimen plant, Allamanda nereifolia.

By Peter Mackenzie, Camellia jap var. "Ellen," his seedling.

Fruit By J. Graff.—A dish of Strawberries.

Vegetables By Thos. Meghran, gardener to W. Stewart, Torresdale,—A large and fine display.

By Wm Johns—A dish of ripe Tomatoes.

PHILADELPHIA SOCIETY FOR PROMOTING AGRICULTURE.

Stated Meeting at Room Masonic Hall, South Third Street, Wednesday April 5, 1854.

President Elwyn in the chair.

Minutes of preceding meeting read and approved.

The following gentlemen proposed at previous meeting, were elected resident members: Job. R. Tyson, Yearman Gillingham, John Clark, Andrew Coates, Chas. F. Hupfeldt, Redman Abbott, and David S. Brown of Philadelphia; Harndon Corson of Germantown; George Oldmixon, of West Caln Township, Chester Co., Pa.

Five propositions for membership were received.

Mr. C. D. Harrison, from the Executive Committee, presented an elaborate report on the finances of the society, from December 31, 1850, to the present time, including the following items:

At the last exhibition the society offered premiums amounting to		$1101 00
Premiums awarded	$739 00	
Of the expenses of exhibition	364 00	
Rent, periodicals, and other expenses for the year	368 00	
		$1471 00
Receipts from all sources for last year		1681 00
Excess of receipts for last year		$210 00

On motion the report was accepted.

The Committee appointed at preceding meeting to inquire as to what Agricultural Society the late Elliot Cresson, Esq., had left the legacy of $5000, reported through their chairman, Harry Ingersoll Esq., that they had attended to that duty and asked to be discharged, which request, on motion, was granted.

Sidney G. Fisher, Esq., Cor. Secretary, to whom was referred the motion of the late Elliot Cresson, Esq.,—that a memorial on the importance of the flax culture be prepared and sent to the federal and the State executives and Legislators, and to agriculturists generally—reported that all apprehensions lest government should lower the duty on linen fabrics were groundless; to do so had at fiast been seriously intended, and hence the motion for a memorial, but those interested in the growth of flax had made such strong representations to the proper authorities at Washington, that the disposition there now was to raise rather than to reduce the duty. There being no existing necessity for the preparation of a memorial, the Cor. Secretary was, on motion, excused from the further consideration of the subject.

The President presented a number of blanks, from the Smithsonian Institute, to be filled with notes of observations on the occurrence of certain natural phœnomena, the budding and flowering of plants, the return of birds, &c. The blanks were distributed among the members with a request that notes should be made throughout the season and sent to the Institution at Washington.

Mr. David Landreth, introduced to the society, Mr. Myron Finch, editor of the "Plough, Loom and Anvil," who addressed the society in support of a proposition to erect a suitable monument to the memory of the late John S. Skinner, Esq., and to provide a fund for his widow.

A letter was read from Mr. P. B. Savery, a member, urging the necessity of life memberships being purchased in the Pennsylvania State Agricultural Society, if that society is to carry out the objects of its organization.

Dr. Kennedy, submitted the following resolution, which after some debate was unanimously adopted,

Resolved, That the action had at a meeting of the society, held Dec., 1852, appointing a committee on the subject of Guenon's method of determining the value of milch cows, was perfectly regular, and that the report of said committee at the following meeting was regularly made, read and approved. On motion, adjourned.

AMERICAN POMOLOGICAL SOCIETY.

The Fifth Session of this National Association, will be held at Horticultural Hall, in the City of Boston, Massachusetts, on Wednesday, the thirteenth day of September next, at ten o'clock A. M.

It is intended to make this assemblage one of the most interesting that has ever been held in this country, on the subject of Pomology. All Horticultural, Agricultural, and other kindred Associations, of North America, are therefore requested to send such a number of Delegates to this Convention, as they may deem expedient.

Pomologists, Nurserymen, and all others interested in the cultivation of good Fruit, are also invited to attend the coming session.

Among the objects of this Society, are the following. To ascertain, from particular experience, the relative value of varieties in different parts of our widely extended country. To hear the Reports of the various State Fruit Committees, and from a comparison of results, to learn what Fruits are adapted to general cultivation; what varieties are suitable for particular localities; what new varieties give promise of being worthy of dissemination; and especially, what varieties are generally inferior or worthless, in all parts of the Union.

In order to facilitate these objects, and to collect and diffuse a knowledge of researches and discoveries in the science of Pomology, members and delegates are requested to contribute specimens of Fruits of their respective districts; also papers descriptive of their art of cultivation; of diseases and insects injurious to vegetation; of remedies for the same, and whatever may add to the interest and utility of the Association.

The Massachusetts Horticultural Society has generously offered to provide accomodations for the Society, and also to publish its proceedings free of expense.

All packages of Fruit intended for exhibition, may therefore be addressed as follows:—"For the American Pomological Society, Horticultural Hall, School Street, Boston Mass.," where a Committee will be in attendance to take charge of the same.

All Societies to be represented, will please forward Certificates of their several Delegations, to the President of the American Pomological Society, at Boston.

MARSHALL P. WILDER, PRESIDENT.
H. W. S. CLEVELAND, SECRETARY.

UNITED STATES AGRICULTURAL SOCIETY.

The second annual meeting of this society was held at Washington, D. C., on the 22d, 23d, and 24th days of February last. Notwithstanding the fearful snow-storm which delayed many members on their route, and deterred many others from an attempt to attend, twenty-one States were represented at this meeting by an aggregate of over one hundred delegates.

Addresses were delivered by the President, (the Hon. M. P. Wilder), and others—several valuable papers were read, especially one by Prof. Fox, of the Farmer's Companion, on the means of extending and improving the agricultural population of the United States.

The following gentlemen were elected officers of the United States Agricultural Society for 1854.

Hon. Marshall P. Wilder, of Mass., President.

(Vice Presidents, for each State.)

C. B. Calvert, John A. King, A. L. Elwyn, J. D. Weston, B. P. Poore, A. Watts, John Jones, W. S. King, Executive Committee.

W. S. King, of Boston, Corresponding and Recording Secretary.

William Selden, of Washington, Treasurer.

Officers of the "Chester County Horticultural Society," elected for the present year.

President—John Rutter, Esq.

Vice Presidents—J. H. Bull, Esq., and Dr. George Thomas.

Recording Secretary—Josiah Hoopes.

Corresponding Secretary—J. P. Wilson, Esq.

Treasurer—John Marshall.

For the Florist and Horticultural Journal.

THE AILANTHUS TREE.

At the period of the introduction of this tree into general use in our City, about twenty years ago, the advantages urged in its favour were, rapid growth, freedom from insects, and an almost simultaneous fall of the leaves, or more properly leaflets, late in the Autumn, thereby securing great cleanliness of walks throughout the summer season. All the advantages claimed have been fully realized, and its dark, rich foliage, and southern habit, rendered it a general favorite. The vigorous growth of its long horizontal roots and their tendency to *sucker* may prove inconvenient in lawns and public squares, but its power or disposition to upheave our pavements is believed to

be no greater than that of other shade trees of equally rapid growth. There would indeed appear to be no valid objection to the extension of this tree, were it not for the odor of the blossoms, which in the month of June fills the air in the neighborhood of the trees, is exceedingly offensive to many persons, and hence probably has been deemed prejudical to the public health. The objection cannot however obtain against all Ailanthus trees, for the plant, being in the language of Botanists *dioicious*, bears its seed upon one tree, and its barren pollen-yielding flowers upon another. The seed-producing tree is not in the least offensive, and had it been exclusively planted, the objection now being considered, could not have been urged. Examples of these seed-bearing trees may be found in many of our streets, Seventh St. and Eighth St., west side, immediately above Walnut, are familiar localities. Unfortunately, and probably from circumstances purely accidental, the pollen-iferous tree has been generally planted, and to the volatile oil contained in its flying pollen may the odor be ascribed.

We have in vain sought proof that this pollen is detrimental to public health. Plausible causes have been stated, but these when sifted out have been found destitute of foundation. They appear to have gained credence from the common error of mistaking events merely contemporaneous, for cause and effect. The College of Physicians of this city, a Society composed of the most sugacious and observant members of the faculty, and at the meetings of which, the causes, phases, and march of disease within our borders, are closely discussed, has not in its "Transactions," the record of any case aggravated or otherwise influenced by the tree in question.

We admit that such evidence is but negative, yet we contend that as far as observation has gone it is conclusive, that the Ailanthus is not injurious to health. That the odor is offensive to many cannot be questioned, yet the dislike is by no means universal: and it might not be improper to suggest that there exist in various parts of the City, filthy sources of undoubtedl y insalubrious odors, which ought to be abated.

We believe that a public statement of the entire inoffensiveness of the seed-bearing tree, especially if made by the high authority of the City Councils, would eventually lead to its general introduction in place of its barren consort.

A. L. K.

THE GENUS FRANCISCEA.

Amongst the species constituting this genus of tropical shrubs are included some of the best hothouse plants in cultivation. Indeed few are better deserving of assiduous attention, or produce a more pleasing effect, when well managed, than some of the many kinds of Franciscea. They are all hard-wooded evergreen shrubs, producing a great profusion of sweet-scented flowers, which, by means of a little judicious management, may be had in beauty most of the year. About sixteen species are known as belonging to the genus, all of which are natives of Brazil. Since the introduction of the well-known F. Hopeana, nearly thirty years ago, various others far surpassing it both in foliage and flowers have emerged into cultivation, and which undoubtedly are indispensable to all collections where choice kinds are a requisition.

As regards cultivation, Francisceas luxuriate in plenty of heat and moisture while growing; but when established, and the wood is properly ripened, they will do with a very moderate temperature, and a very reduced or rather dry atmosphere. The flowers are produced on the apices of the young shoots; therefore previous to starting them, cut them well back; and if they are old plants, shake them out a little or reduce their balls, and pot them in a fresh compost of leaf-mould, turfy peat, and sandy loam, in about equal proportions; with good drainage, and not in over-large pots; keep them in a close atmosphere with a brisk heat, syringing over head every day while growing; stop the young shoots as they progress, and train them into shape, so as to form a good specimen. The following species of this great genus are in cultivation at Kew.

F. calycina. This is one of the best, forming a compact bush two feet high, and flowering freely on very small plants; the leaves are oblong, rather elliptical, three or four inches long, glabrous, of a good substance, and green on both sides. The flowers are from two to eight in a cyme, of a violet blue, becoming light with age; each flower is nearly two inches across, and remains in perfection for a considerable time. This plant is known as F. confertiflora.

F. eximia is one of the most beautiful species in cultivation; it is of a rather robust habit, two to three feet high; the leaves are oblong-lanceolate, four to seven inches long, undulated, darkish green above and whitish beneath, and covered throughout with small hairs, which render them soft to the touch. The flowers are large, very showy, two to five in a cyme; each flower two and a half inches across, deep lilac, ultimately becoming nearly white.

F. Hopeana. This grows about two or three feet high, has smooth leaves two or three inches long, undulated, green on both sides, flowers usually solitary, very fragrant, near an inch and a half across, of a deep violet, fading to white.

F. hydrangeæformis is a robust grower, attaining the height of three to four feet, branching mostly towards the apex; the leaves are smooth, oblong-obovate, six to nine inches long, tapering to a short thick foot-stalk; the flowers are in a dense compact raceme or cyme, forming a rather large compact head, somewhat resembling Hydrangea hortensis; they are of a fine rich blue purple, becoming almost white in age.

F. hydrangeæformis alba. This variety has white flowers, otherwise not different from the original.

F. HYDRANGEÆFORMIS ELEGANS. In this variety the flowers are larger and finer than the original, and it is likewise of a better habit.

F. LATIFOLIA. This species has smooth ovate leaves three to four inches long, rather thin, and of a light-green on both sides; the flowers are two to together, violet, but soon become paler with age.

F. VILLOSA. This very much resembles F. latifolia; is of a larger and more robust habit, with smaller flowers; the leaves are three to five inches long, oblong-ovate, and hairy on the margin.

F. ACUMINATA. This is a very neat-looking plant, and will form a compact bush one to two feet high: the leaves are oblong-acuminate, minutely hairy, two inches long, green on both sides, and the young branches are of dark colour; the flowers are from two to six in a corymb, of a deep purple, soon fading to pale.

F. ANGUSTA. This species much resembles F. acuminata, but is of a more robust habit; the leaves are two to five inches long, and minutely covered with very small hairs, which give them a roughness, especially beneath. The plant grows two feet high, has violet flowers, which soon become light.

Royal Botanic Gardens, Kew. J. HOULSTON, *in Turner's Florist.*

Mr. Longworth has written a letter to Mr. Ward, the botanical editor of the Horticultural Review, in which he is very compassionate towards the editor of this Journal, the ground of his kind feeling being that we are in great trouble on account of the decision of the fruit committee of our society on the strawberry question. Now Mr. Longworth knew that in place of being a trouble to me, the reception of that report was one rather gratifying to Mr. Meehan's friends; he knew that the report was *rejected without a dissenting voice.* The unfairness with which Mr. Meehan was treated by the committee, or the minority of the committee who made the report, was sufficient to damn the report, even if the opinion of the majority of the society were not against the Cincinnati theory.

This rejected report got out before it was submitted to the society, and against the rules of the society, and has been published in several of the horticultural periodicals; we hope that for the credit of the society they will mention this in their next number. Mr. Hovey, in his last issue, has a very amusing page on the subject. It is well known that he is the very greatest individual in the pomological and horticultural line; what Mr. Hovey says upon any subject is conclusive, and as he winds up his article with the grand "we dismiss the subject," of course nothing further should be said upon it; HE has arrived at the conclusion that pistillate varieties NEVER CHANGE, and in the face of the fact of even his pistillate seedling having changed he re-asserts it. A gentleman wrote to us not long ago that Mr. Hovey made nineteen guesses at the sexual character of his strawberry, until enlightened by Rev. H. W. Beecher. All that botanists want is the fact of a change being possible; these unchangeabilities fight for their side as if they were afraid that if they admitted this possibility, all their plants would do nothing but change. Mr. Hovey announces the fact that as the committee "most emphatically &c." pronounced that plant was not his seedling, therefore, all that has been written by our side "has been deduced from a series of gross and unwarrantable errors." We undertake to say in an equally emphatical, unreserved and unequivocal manner, that if not Hovey's seedling, the committee did not know what it was. They pronounced it the Cushing, which Mr. Cope stated he had turned out of his place as worthless several years before. But this discussion is useless; we see no remedy for the people who will not believe the assertions of others as honest as themselves, but what we before recommended, namely, the study of botany.

The Culture of the Grape, and Wine Making. By Robert Buchanan. Moore, Anderson & Co., Cincinnati, O. 1854, 12*mo. cl.* 63*cts.*

We have received from the publishers the fifth edition of this valuable manual, which contains a great deal of useful information on laying out a vineyard, choice of position and soil, pruning and diseases of the Vine, and other things pertaining to grape growing.

Also the processes used in making and fining wines, and statistical accounts of the cost and product of vineyards in this and other countries.

The author, Mr. Buchanan, has a merited reputation as a wine grower, and a record of his observations cannot but be useful to those who cultivate grapes for wine making.

There is an appendix containing articles on the same subject by Messrs Longworth, Rehfuss, and Mosher, and others. We hope to see the manufacture of wine become in this country a large and profitable business.

An essay on Strawberry culture follows, by Mr. Longworth, which is an exposition of the peculiar views entertained by that gentleman.

The Journal of Agriculture, W. S. King, Editor, is published at Boston, at one dollar a year. The reputation and known abilities of Mr. King, the Secretary of the United States Agricultural Society, are sufficient guarantees of the usefulness of the work.

The Working Farmer, New York, J. J. Mapes, Editor. With the March number commenced the sixth volume of this very useful and interesting paper. Each monthly issue contains twenty folio pages of original and selected matter. It is published at 148 Fulton street, N. Y., at one dollar per annum.

The American Polytechnic Journal, published at Washington, is edited by Prof. C. G. Page, Messrs. Greenough, Fleischmann, and Stetson. It contains in addition to the description and figures of patents, many interesting and well written articles on Agriculture, Grape culture, &c. The subscription is three dollars a year in advance.

We have pleasure in informing our friends in Baltimore, that Mr. James Pentland, has kindly consented to act as our agent in Baltimore. He will receive all outstanding subscriptions in that city. To Mr. Wm. Saunders, late Cor. Secretary of the Maryland Horticultural Society, we are indebted for the large circulation we have in that city: which we hope will go on increasing in the same ratio.

We owe an apology to our subscribers for delaying the issue of our April number until this time; but the press of business to which we were subjected in the early part of the month, entirely prevented our attention to it. By publishing the May number immediately we hope to gain time to be ahead in future. We have been working very hard to please our subscribers, and with the exception of the irregularity of which we plead guilty, we think that we have succeeded. All we ask at present is for the large majority of our readers to do that duty by us which they have thus far omitted, namely, *to pay their subscriptions*. *Gentle reader*, think of these things.

We have ready and in preparation for future issues of the Florist, several very beautiful illustrations; among which are Aralia papyrifera, the rice paper plant of China, a new Petunia, raised in New York, a handsome coloured figure of the *Darlingtonia californica*, a new *Aphelandra*, one of Mr. Croft's Verbenas, &c,—some will be executed in Europe, others here. In this department we have not yet been equalled in this country.

We have received a large descriptive catalogue of Green and Hot-house Plants, Fruit and ornamental trees, Strawberry, &c., from Messrs Kennedy & Negley, Baywood Nurseries, near Pittsburg, Pa.

We received from Messrs T. F. Croft & Co., several specimens of their seedling Verbenas, which were remarkable for beautiful colour and markings.

THE FLORIST
AND HORTICULTURAL JOURNAL.

THE ANEMONE.

The genus Anemone contains some of the most lovely and beautiful of flowers. All the species, without exception, are worthy of cultivation, and some of them claim our most earnest attention, yet somehow or other we seldom see even a single type of the family in any garden. Why this should be the case, I am at a loss to divine, considering the ease with which most kinds may be cultivated. One reason, perhaps, is that we are so familiar with the feature, from the abundance of native species which are to be seen as some of our earliest spring flowers in the woods. Would that we could remove such prejudice from the human mind, and introduce more general enthusiasm for our own beautiful floral riches. Why should we despise Nature's embellishments merely because they are indigenous, or found growing in an immediate locality? Let us examine, then, the loveliness of this genus and its allies *now*, when it is clothed in all its best attire around our very thresholds. Who can, with the feelings of love for flowers, pass neglectfully by while the Wind Flower (Anemone nemorosa), the Rue Anemone (formerly Anemone thalictroides, now Thalictrum anemonoides), or the Liver Leaf (once Anemone Hepatica, but now Hepatica triloba), dispute our path, or rather form a carpet of Dame Nature's exquisite weaving, traced by the most delicate embroidery of her daughter Flora? Let us see beauty in its pristine splendor, without regard to country—or if there is to be a precedence, then let us feel the most interested in what is our own, when equal in quality.

The geographical range of this genus is very extensive, although confined to the northern hemisphere; there are examples in Japan, and others disseminated over the continent of Europe, from Portugal even to where the imperious Czar sends the objects of his despotic wrath; yes, even the inhospitable regions of the dreary Siberia furnish a few species to cheer the desponding, drooping and hopeless spirits of the forlorn exile, and, as if

anticipating the prestige of liberty which rolls westward, we find our own continent rich in the same family of plants.

Botanists arrange the genus Anemone in the order Ranunculaceæ of the Natural, and in the class Polyandria, and order Polygynia, of the Linnæan system. It is composed of an aggregate of low herbaceous plants, mostly quite hardy, and all perennial, some being fibrous and others tuberous roots. Amongst the handsomest species are *A. Pulsatilla*, apennina, japonica, vitæfolia, sylvestris, nemorosa (with the double variety), caroliniana and vernalis; but the two most commonly known amongst cultivators as the Anemone are, A. hortensis and A. coronaria, thelatter of which (a native of the Levant) has been so much cared for as to be considered worthy of coming under the cognomen "Florist's Flower." This species in a natural state is single, but the double varieties are considered to be the handsomest. The colors are of every shade, from nearly pure white down to almost blue-black, embracing the various grades of scarlet, purple and striped. It is tuberous rooted, and not sufficiently hardy to withstand our most rigorous winters. As this is the most beautiful and esteemed, a few remarks on the cultivation and standard excellence may be of use.

Criterion of a good Anemone.—The stem should be erect, strong and pliable, not less than nine inches high. The flower should be about two and a half inches across, composed of an even, well rounded row of outer petals, substantial in substance, slightly incurved on the edges, but lying flat in the base, forming a shallow saucer-like shape. The centre of the blossom ought to be filled up with a compact mass of strap-formed petals (petaloid stamens), regularly imbricated, lying evenly over each other and slightly reflexed; occasionally the abortive pistils form another series of smaller petals in the extreme centre, and make the flower still handsomer. Sometimes the guard leaves are of a different color to the inner petals, other examples are striped, while some are entirely selfs; in all cases, the colors should be distinctly defined and bright; all gradations are equally admired, provided they be pure. In England, and similar mild climates, the Anemone is cultivated in the open ground, without more protection than a slight covering in winter, and a screen for the flowers during blooming time; but in our climate it is better to treat it as a cold frame plant, for although it may be protected in the open ground in winter sufficiently to keep the roots from perishing, and likewise covered when in flower, the fierce rays of the sun during its most active growth are too intense, and are apt to scorch the leaves, causing the flowers to be few and small. If planted in a frame, and treated as we do Neapolitan violets, and other plants of

like character, using suitable soil, the Anemone can be had as fine as in any part of Europe. The Anemone delights in a due share of leaf mould, or the loose black vegetable matter which is often found in woods; add one-third of either of these materials to two parts of good strong pasture loam, and a very good compost is obtained. Let the frame be placed facing the sun on a well drained bottom, fill in a foot in depth of the above material, plant six inches apart about the beginning of October, and cover one and a half inches. Through the winter season, cover, give air, water, and line around the outside of the frame, as recommended in former articles in frame culture.

This kind of culture will cause them to bloom earlier than they would if planted in the open ground; the growth will be vigorous and not so subject to be injured by the drying winds and hot suns of early summer; consequently, the roots will swell, ripen off well, and increase accordingly. When in flower, if a light canvas be thrown over the glass, on very bright days, the colors will be more brilliant; but there is no real occasion for it if plenty of air be given, for in the middle of March, when they ought to be "arrayed in all their glory," the sun will not do much harm. After blooming is fairly over, the foliage will soon begin to turn yellow and the roots ripen; when the top growth becomes withered, the roots may be carefully lifted and spread out in a dry but cool room for a few days, after which they should be cleaned from the rough soil and stowed away in paper bags, still keeping them dry and cool, until next planting time. The only methods of propagation are by division of the roots and from seed.

Dividing of the Roots.—It is best not to break or divide the tubers until immediately before they are to be planted; for if done sooner, unless kept very dry and separate from each other, they are subject to become mouldy where injured, which sometimes goes so far as to destroy the root; every portion to which there is a crown will grow, under favorable circumstances; but it is best not to be too greedy, and only break the tuber into so many parts as will readily come asunder without exposing too great a severed surface. The irregularity of form will enable any one to judge accurately of what is here meant.

Propagation from Seed.—Some of the more double kinds do not produce any seed, as both stamens and pistils are metamorphosed into bundles of central petals, but occasionally even these will produce a few stamens underneath the small petals, and the pistils are also sometimes sufficiently developed to be able to perfect seed if impregnated; other double sorts produce both perfect, only not in so great a quantity and with the same

regularity as the single ones; so that it is necessary to have a few semi-double or single varieties in the bed to insure success; but it must be borne in mind that the strictly single kinds will very seldom produce double flowered offspring, as they are almost invariably fertilized by their own more abundant pollen. If care be taken to keep the various colors separate, the progeny will most generally partake of the parent; but there is little use in being thus exact, as nearly all will be beautiful, and a mixture often gives most pleasing results. Soon after the petals have fallen the seed will begin to ripen, and should be picked off as each head comes to maturity, which may be known by the outer surface becoming detached at the lower base from the receptacle; if not gathered soon as ripe, it flies off and is lost. Keep in a dry place until the middle of September, and sow in a frame well exposed to the sun, using the above-mentioned compost, made fine on the surface, level very smooth, and scatter the seeds thickly over the whole area; afterwards, sift through a fine sieve a little more equally over the seeds, just enough to cover, but not more. It is well to give a good watering before sowing, and cover afterwards, which leaves the surface loose and prevents baking. Keep shaded on bright days, or darken the glass till the young plants have advanced into the first "rough leaf," and regulate the air so as to prevent scalding, but still keep a humid atmosphere. When they are all well started, the shading may be discontinued by degrees, and through the winter give all the sun and air possible, but avoid cold winds and keep well covered from frost. When the warm days of early summer begin to advance, the seedling plants will ripen off; they may then be taken carefully up, and packed in very dry earth in a box, and kept in a dry and cool room till the regular time of planting. The next season they will bloom, and can be treated as the regular stock.

If the above directions be attended to, this too much neglected flower will bloom as fine, increase as fast and give as general satisfaction as it does in many parts of Europe, and will give gratification and pleasure to all who will take the little trouble required.

Wm. Chorlton.

THE PAULOWNIA IMPERIALIS.

When this tree was first introduced into this country, a few years ago, it rapidly rose to a wide popularity. The demand for it was so great, that few nurserymen ran the risk of an overstock, and the prices obtained were in consequence high. Latterly, inquiries for it became less frequent, and

it might be bought for little more than an Ailanthus. I am much mistaken if it remains long in this undignified state. With some indifferent qualities, it has many superior ones. It has coarse foliage, but offers a grateful shade. Its stiff, formal shoots are unsightly and ungraceful, but its rapidity of growth more than covers these faults. But in searching for a defect as a set-off to the gorgeousness of its blossoms, we encounter considerable difficulty. Those who have not been favored with a sight of their rare beauties, can scarcely form a correct idea of them. They may fancy to themselves a very vigorous *Catalpa tree*, which by some magical stroke of floral power has been made to produce in magnificent profusion, large racemes of *Gloxinia flowers*, of a fine purple color. So great, indeed, is the resemblance, that with but little stretching, our fancy might be real. We might believe that the presiding genius of open air culture had entered the lists against her of the exotic department, and by seizing on one of her most treasured and delicate of hot-house forms, throwing them on one of her sturdiest subjects in the very teeth of winter, before at least sweet smiling May has well unfolded her all-longed-for lap, and there by bidding them bloom unscathed, unhurt, had claimed a triumph over her defeated rival. But fancies, however vivid, are but a poor substitute for facts; those who planted Paulownias a few years ago, will now have them in flower, and those who would rather see than imagine one of the most beautiful flowering trees in cultivation, would do well to call on their friends who have them. Those who live in the northern part of the city of Philadelphia, may find a beatiful show of them at the residence of Mr. McCullough, corner of Germantown avenue and Carpenter street, but there are single flowering specimens in many other localities.

In addition to the rapid growth of the Paulownia, and the beauty and earliness of its blossoms, there is yet another point in which it will be favorably viewed by the many: it is not a difficult tree to transplant. Though, in another place, I have shown that there are in reality no trees difficult to transplant, when the true principles of the operation are understood; yet the neglect and ill treatment some trees will endeavor to submit to, are so generally understood by the term "easy to grow," that we may perhaps correctly employ it here. The roots are so fleshy, and the wood so spongy, that the tree has almost a Cactus-like power of maintaining its vitality; and even in the matter of soil, I do not think I have met with a single instance of its failing to do well in the most varied.

Thomas Meehan.

IS THERE POSITIVE PROOF OF THE ORIGIN OF WHEAT FROM A GRASS BELONGING TO A DIFFERENT GENUS?

BY L. C. TREVIRANUS.

The question where those objects of cultivation originated which are so indispensable to man in a state of civilization does not, when taken by itself, admit of any general answer; but considered in a wider extent, can only be answered conditionally. For either the answer is inseparable from the general question as to the development of the human race, and so far lies out of the range of experience, or we must assume that these objects were found by man in a state of nature, and in the condition in which they were found, applied to his uses; or, finally, that they at first existed in a certain form which has been modified by the agency of man, so that the original state is no longer extant, or if so, in such a condition as not to exhibit the transition from the cultivated plant to the parent from which it was derived. The first method of reply holds the question as in itself unanswerable, and in some measure coincides with those views which regard the objects of cultivation, such as the Laurel, the Myrtle, the Vine, the different kinds of corn, &c., as the gifts of the gods, that is, of beings who introduced cultivation into the earth from their unknown habitations. The second answer to the question must have been received unconditionally as the right one, were it clear that our cultivated forms have ever been found wild, or still are found so; that is, whether they have ever lived or still live in any specific locality independently of the agency of man. But the necessary proofs are altogether wanting.

When Dureau de la Malle would make it probable from historic dates, that the part of Palestine and Syria which borders on Arabia is the parent country of corn, namely, wheat and barley (Ann. de Sc. Nat. ix. 61); when Heinzelmann would consider wheat as growing wild in the country of the Baschkirs, and A. Michaux Spelt in the mountains in the north of Hamadan, in Persia (Lamarck, Encyc. Bot. ii. 458), we must bear in mind that, as regards the first, we can place very little reliance upon the accounts of the occurrence of species by persons who were little acquainted with objects of natural history, or upon their description or pictorial illustrations; and that, in respect of the other instances, a far longer residence than falls to the lot of travelers in general in the countries where they are supposed to have taken their origin is requisite, in order to distinguish the wild state of a plant from such as have merely escaped from cultivation. There remains, then, only in answer of the question, that a typical form of these plants

originally existed, which has been so modified by art and human skill, in conformity with man's necessities or uses, that it is no longer capable of being recognized as such, though existing in its wild state, or together with the form produced by culture. That such alterations of plants have been effected by cultivation, and are now become permanent, is beyond question. Our biennial cultivated carrots, with their succulent well-flavored roots, may be produced in perfection after some generations, by the art of the gardener, from the annual wild form, whose root is dry and of an acrid taste (Lond. Hortic. Soc. Trans. ii. 348). We cannot, however, prove the origin of other cultivated plants by experiment; we are ignorant, for instance, how the cauliflower originated from the normal form of our coleworts. The wild form of our potatoes is far from being perfectly known. Of many forms found apparently wild in the lower mountains of South America and Mexico, which have been introduced into systematic natural history under the names of *Solanum Commersoni*, *maglia*, *etuberosum*, *immite*, *verrucosum*, *utile*, *stoloniferum*, &c., (D. C. Prod. Syst. Veg. xiii. s. 1, 32, 677; J. D. Hooker, Bot. Antarct. Voy. 32), sometimes one, sometimes another is brought forward in proof that an alteration of the original form has been effected by culture, which by repeated reproduction has become permanent, but whose derivation from that particular species has not been observed. A similar origin has been assumed for our species of corn, especially for the most important of them, viz: wheat, but no one had succeeded in indicating the original form, and the alterations which had taken place. That this, however, has been effected, we are assured by M. Esprit Fabre, an intelligent gardener at Agde, near Montpellier, to whom we are indebted for some excellent observations on the plants of his rich neighborhood (Ann. des Sc. Nat. 2, Ser. vi. 378, 3 Ser. xiii., 122). The observations on which this result is grounded, have been published by the author himself very briefly in a small pamphlet entitled "Des Ægilops du midi de la France et de leur Transformation," 20 s. in 4to., with three lithographic plates; and Prof. Felix Dunal, of Montpellier, has added a short preface and appendix, and I have myself, when at Montpellier in the autumn of 1851, had an opportunity of examining some dried specimens of the plants resulting from the experiments of M. Fabre, which had been communicated by him to his friends in that neighborhood. M. Fabre considers Ægilops ovata and Æ. triaristata, of which the first especially abounds everywhere on the coasts of the Mediterranean, as the parent plants of our wheat, an opinion by no means new, but one which had never before been supported by such weighty arguments. The genera Ægilops and Triticum, it is well known, though

they agree in inflorescence, in the multitude of flowers, and in the general form and texture of the parts of fructification, differ in this respect, that the glumes in Ægilops are more swollen, that the upper spikelets are abortive, containing no ovaries but only stamens, and that the fruit, instead of being convex on either side, as in wheat, is concave. The presence and number of the awns is inconstant in either genus, and in a species or form of Ægilops which Requien found in Provence, and named Æ. triticoides, but which occurs in Sicily, at Palermo, as appears from specimens now before me, and, if as I believe, Link's Crithodium Ægilopoides (Linnæa ix. 132, t. 3) be the same thing, in Greece also, the glumes are gradually flatter, so that their form, especially as at the same time there is but one awn instead of several, approaches very closely to that in the genus Triticum. Fabre, whose attention was attracted by this phenomenon, undertook in consequence, a series of experiments with Æ. ovata, which he cultivated with the greatest care for 12 years, from 1838 to 1850, and at first in a plot of ground inclosed by walls, in which no other species of grass existed, and afterwards in the open field, surrounded however by vineyards. The result of this experiment was that the plant acquired longer ears, whose rachis was not brittle as before when ripe, and in which, step by step, fewer blossoms were abortive; the glumes, meanwhile, were less broad and flatter; instead of a number of awns, in general one only remained; and the ripe grain, which in consequence of its concave form, remained inclosed in the hollowed glume, burst out by reason of its increased thickness. In brief, the species Ægilops ovata had acquired a form, represented in the figures, which every one must recognize as that of a Triticum, and which in continued cultivation was retained without any tendency to return to its original condition. M. Fabre observed also, that Æ. triaristata, Willd. was subject to the same metamorphoses, only he became acquainted with this species too late to make the same experiments with it which he had made with Æ. ovata, so as to be able to prove its transition into Triticum. His treatise closes with these words: "We had here also (instead of Ægilops ovata with which the experiment was commenced) a Triticum, a true species of wheat, which cultivated in the open field for four successive years, retained in its form and yielded harvest like other corn of this kind;" and M. Dunal adds, "We are in consequence necessitated to allow, that certain of our cultivated kinds of wheat, if not all, are nothing more than peculiar forms of certain species of Ægilops, and that they can be regarded as none other than races of these species, so that to M. Esprit Fabre belongs the honor of having

demonstrated the true origin of cultivated wheat, which others before him only imagined and have indicated doubtfully."

Whatever consideration, however, may be due to this expression of so acute and practical an observer, who not only from personal acquaintance with a near neighbor, but from an immediate inspection of the result obtained by these experiments, was in a condition to judge of the correctness of the observations, and the justice of the inferences, the subject is too important not to make one wish for a repetition of the experiments by a combination of many persons of different views—experiments which are easy of repetition, and have no other difficulty than the length of time requisite before the necessary result can be attained. We have before us the coincidence of two genera so different in apparently essential characters as Triticum and Ægilops, and the question arises, if a transition between these is established, must not other genera of Gramineæ in a similar way fall to the ground? But more especially, inasmuch as the normal condition of the several species of Ægilops is maintained in their native localities, it is requisite to know more perfectly than we have learned from M. Fabre, what are the conditions and influences under which the observed changes have taken place, before we can regard the results which have been obtained as perfect verities in the annals of science and agriculture.—*Gardeners' Chronicle.*

FOREIGN PATRONAGE.

Under this caption we would beg leave to draw attention to a review contained in the Gardener's Chronicle of April 8th of the present year (p. 218).

The subject of the review is an essay by Dr. Joseph Leidy, on a Fauna and Flora within living animals, published by the Smithsonian Institution, April, 1853.

After the introductory sentence, it is stated of the essay in question, that "it may be true that it does not contain much which may not be found in Robin's second edition of his admirable work on the fungals which grow upon animals;" a short distance afterwards, "we would point out more especially the plates which represent the curious parasites which infest the intestines of different species of Iulus, and the several entozoa which live in their company; for though the principal of them are not overlooked by Robin, there is nothing in his plates as regards these particular productions

which can for a moment be compared with Dr. Leidy's copious and excellent figures;" and in conclusion, it is kindly admitted that the author "is evidently an original observer, though not perhaps completely *au courant* in European publications."

No fault can properly be found with the concluding compliment, as, to be an "original observer" is doubtless, from the absence of rivalry, a position which deserves the highest regard and consideration from those whose principal labors are in the copious and well explored field of compilation, and who may be thus supposed to be "*au courant*" not only in European but also in American publications.

Our present purpose is with the remarkable errors contained in the two extracts first given.

It is a singular fact, but one worthy of attention by all compilers, that among "original observers," the date at which observations are made known is frequently of importance in tracing the history of investigations, and that a reviewer (who is perhaps to be looked upon as a higher development of compiler, in so far as his compilations must be very judiciously condensed to avoid tedium) is not justified in simply casting his eye over illustrations of a work, and becoming familiar with the names of the draughtsman and engraver.

As a consequence of the neglect of looking at the text of either Dr. Leidy or Mr. Robin on these entophyta, Professor Lindley has, in his haste to be "*au courant*," neglected to observe that Mr. Robin's book was published several years later (1853) than the first descriptions of the species contained in the memoir reviewed by him,* and that the account given by Mr. Robin is taken entirely from the American "original observer," and finally, that Mr. Robin has added to the Enterobryus, one of the five genera made known in the American memoir, a single new European species.

We have assumed that Professor Lindley is responsible for these perversions; the magazine in which the review appeared is edited by him, and unless some authorship is indicated, the editor must be held accountable for what is issued under the sanction of his name.

In placing these facts without comment before the readers of the Florist, we are acting merely from a sense of justice, and are far from supposing that any effect will result. The "horizon of brass about the size of an umbrella," to borrow an expression of Mr. Emerson's, which limits the vision of many of our transatlantic neighbors, may reflect tolerable images

* Vide Proceedings Acad. Nat. Sciences of Philadelphia, vol. 4, 1849.

of objects near at hand, but before it can make its possessor "*au courant*" in general science, a radical change is required, not only in the mental, but in the visual organs which receive its reflections. LC.

CLEANLINESS IN GARDENING.

Cleanliness, the proverb tells us, is next to godliness, and one reason why it is placed so high as a moral duty is, because it is essential to health. And it is quite as essential to the health of plants as to that of animals. Passing through the houses of a friend some time since, who considers himself, and I suppose is considered by others, a good gardener, I was much struck to observe that the leaves of his hard-wooded plants were entirely covered with the parasite denominated the *soot fungus*, which gives such an unsightly appearance to the orange trees in the winter, and which, together with the accumulation of dust and veritable soot from the heating apparatus, had so metamorphosed them, that, instead of being green, they were black. And I suppose my readers have not unfrequently seen the same thing. Perhaps it is not too much to say, that it is just possible, if they look into their own frames and greenhouses, they may see it at this moment; for the dull and dark days of January are very likely to bring it about. Well, this arises from a want of cleanliness, and it is also certain that it is very injurious to plants; for the leaves are the lungs of the plants, and if you choke up these vital organs, the plant cannot breathe; and if it does not breathe, it cannot live. Just as you cannot live yourself if your lungs are choked up with dust, as they would be if you were a mason, or a bricklayer, or a needlemaker, unless you made use of the remedy just now prescribed in a leading journal for such cases, and wore a moustache. The remedy for plants, to save them from going into consumption, is a free use of soap and water. There is plenty of time during the snow and rain of winter to get such work as this done; and really, if the plants are intended to be healthy, it must be done. When the men are frozen out or washed out, set them to work at cleaning the dirty leaves, only let them take care they are not bruised in the operation.

So much for *personal* cleanliness among plants. But we all know that this is a virtue not to be maintained without cleanliness in our dwellings also, and it is just the same with plants. Under the very best management leaves will become dirty in the winter; but a good deal may be done to prevent it, and here, as well as in other instances, prevention is better than

cure. Just glance at the lights in the house in which you find the leaves all black and foul—not very transparent, are they? And here is one reason, no doubt, why the plants are in the state they are. The laps are all filled with a gelatinous vegetable production, which is sure to make its appearance along with damp and dirt. And the outside surface of the glass is covered with all the various matters which, floating about in the atmosphere, are from time to time deposited upon it, And so light is shut out. Light is life; be that never forgotten. Everybody believes it, and yet hardly anybody acts upon his belief. The glass of the greenhouse is allowed to get dirty, and to continue dirty; and the plants being shut out from the vivifying and purifying influence of the light, become drooping and diseased. The remedy is at hand—soap and water still, and not in homœpathic doses either. When the plants are housed in autumn, or before they are housed rather, let every bit of glass, whether in the roof or side-lights, and every inch of the building besides, have a thorough out-and-out cleansing; and if necessary, as it undoubtedly will be, clean the glass again during the winter. It is not the cold that we have to fear. That is easily kept out; and where one plant perishes from cold, a dozen perish from the damp and dirty and mouldy condition they get in through the want of light.

But we must come down a little, and look at the state of the surface-soil in the pots. Why, that is completely covered with a growth of conferva, and looks a good deal greener than the leaves; and I should be disposed to say, if a gardener thinks to grow plants this way, he must be *greener* than either. For how can you see whether a plant requires water or not? and of all the causes that render winter cultivation of plants a failure, none is more effective than negligent watering. And then how can the air penetrate to the roots? You have hermetically sealed the soil, and yet you expect the plant to grow. Get all this mass of green scraped off, and throw a little fresh soil on the top: that will be something like; and the improvement in appearance will be fully equalled by the improvement in reality.

In fine, it is impossible to say too much about cleanliness in everything that relates to the management of plants. Without it, all effort and expense will be thrown away; with it, a great deal which is commonly deemed essential may be dispensed with.

F. W. Joynes.

In Turner's Florist.

The famous collection of plants belonging to Mrs. Lawrence, of Ealing Park, London, has lately been sold. There were in it some of the finest specimen plants in England. To give an idea of the size of some of them, and the prices they brought, we quote from the Gardeners' Chronicle:

"We observed that the enormous Epacris grandiflora, which for many years formed the crown head of the Ealing Park collection at the Chiswick fêtes, was bought by Mr. Eyles for the Crystal Palace Company, for 12*l.* 10*s*; this fine plant was quite 6 feet high, and as much through, and covered with bloom. A Polygala acuminata of similar size, and also in flower, was put up, and fetched 10*l.* 15*s.*; this was purchased by Mr. Upton, who also became the fortunate possessor of a magnificent Azalea exquisita, for which he paid the handsome sum of 17*l.* 17*s.*; this plant was in all respects in excellent condition, and measured about 5 feet in height and 6 feet in width. The same buyer likewise purchased a beautiful Azalea variegata, 4 feet by 5 feet, for which 15*l.* 15*s.* were paid. An extremely good plant of Azalea Gledstanesi fetched 10*l.* 10*s.*; this was purchased by — Johnstone, Esq., of Oak House, Feltham. Azalea Lawrenceana (which did not appear to be different from Minerva,) fetched the great price of 24*l.* 3*s.*; this was bought by Mr. Upton; it was certainly a splendidly grown plant, measuring 4 feet in height and 6 feet in width. Azalea Apollo, 5 feet by 4 feet, fetched 8*l.* 10*s.*; and A. Gledstanesi, 7*l.* 5*s.* Azaleas, altogether, fetched good prices, as did greenhouse plants generally; although some Heaths, Eriostemons, Podolobiums, Indigofera decora, and a few other things, sold for prices considerably below their value. Stove plants seemed less in demand than greenhouse plants, and therefore realized less money. Beautiful bushes of Ixora javanica, 4½ feet in height, and 3½ feet in width, only fetched 2*l.* 10*s.*; Dipladenia crassinoda, 4 feet high and 3 feet through, 10*s.*; Allamanda cathartica, 5 feet high and 4 feet wide, 2*l.* 15*s.*; and other plants of this description fetched similar prices. The number of lots sold to-day was 161; the principal purchasers, in addition to those already named, were Mr. Colyer, Mr. Ambrose Basset, of Stamford Hill; The Earl of Stamford and Warrington; Mr. Dods, gr. to Sir John Cathcart, Bt.; Mr. Walker, of Acton; Mr. James Veitch, of Chelsea; and Messrs. Fraser, of Lea-bridge. Yesterday about the same number of buyers assembled, and a similar number of lots sold, but they did not fetch near such high prices as they did on Thursday. The plants were, however, generally smaller. A Pimelea spectabilis, 5 feet in height and 6 feet in width, was bought by Mr. Colyer, for 6*l.* 15*s.*; a Dillwynia, 2½ feet high, and as much through, was knocked down to Messrs. Fraser for 5*l.* 5*s.*; Boronia serrulata, 2 feet in height, and a little more in width, was purchased by Mr. Veitch for 5*l.* 15*s.*; Mrs. Treadwell had a Chorozema Henchmanni, 3½ feet in height, and 4 feet in width, for 3*l.* 15*s.*; Erica metulæflora bicolor, one of the handsomest of the genus, measuring 3½ feet in height, and as much through, was purchased by Mr. Turner, of Slough, for 2*l.* 10*s.*; Franciscea latifolia, 2 feet high, and as much through, was bought by Dr. Daubeny, of Oxford, for 17*s.*; the same gentleman also purchased an Adamia versicolor, of similar dimensions, for 1*l.* 2*s.*; Boronia pinnata, 3 feet in height, and more in width, was knocked

down to Mr. Speed, of Edmonton, for 2*l.* 12*s.* 6*d.* Coleonema rubrum, a beautiful plant, 6 feet high, and as much in diameter, was bought by Mr. Eyles for the Crystal Palace Company, for 3*l.*; other lots fetched from 10*s.* to 4*l.* each."

PHILADELPHIA SOCIETY FOR PROMOTING AGRICULTURE.

STATED MONTHLY MEETING.

Stated Meeting at Masonic Hall, South Third street, Wednesday morning, May 3d, 1854.

Dr. Elwyn, President, in the chair.

Minutes of preceding meeting read and approved.

The following gentlemen, proposed at previous meeting, were elected resident members: Mr. W. H. Gatzmer, of Tacony, and Dr. Charles Willing, and Messrs. M. A. Kellogg, T. T. Lea, and W. R. Morris, of Philadelphia.

A proposition for resident membership was received.

The committee appointed to secure, by subscriptions from citizens generally, the holding of the next State Agricultural Fair at Philadelphia, reported subscriptions amounting to $2,835, which amount would be increased several hundred dollars when full returns were received. The committee had not yet waited on retail dealers. It was so obviously the interest of that class, that the State Fair should be added to the business attractions of Philadelphia, that any deficiency in the required amount would doubtless be speedily supplied.

The President stated that little or no doubt existed that Philadelphia would be selected by the Executive Committee of the State Society, for the next grand autumnal display. He inquired if the committee had visited the grounds liberally offered for the purpose by the Pennsylvania Railroad Company.

Mr. A. T. Newbold had visted the grounds in company with Mr. A. S. Roberts, and examined their suitableness for the State Fair. It has been objected that the locality was too near the city, and not well watered. Were such found to be the case, no difficulty could arise, as Mr. O. Jones' grounds, eligibly situated, one and a half miles from the bridge, were also at the disposal of the Executive Committee.

The President requested Mr. Cook, an English farmer present, to inform

the Society of the estimation in which the Italian Rye grass was held in England. The grass had been sown on Mr. Reybold's farm, in Delaware, and was much approved there.

Mr. Cook had sown the Italian grass alone, two bushels to the acre—or better with eight lbs. Red clover—late in the season. He had mowed four times a season, others five times, when used for soiling purposes. He knew no grass preferable to the Italian Rye grass.

Dr. Emerson called attention to the preference of the English farmer for imported seed, and thought that the American would do well to imitate his example.

Mr. Cook gave as a reason, that seed raised at home was genarally mixed with that of other grass seeds. The yield of Rye grass was three tons per acre at first cutting, and one and a half tons at second. The best hay was worth £5 per ton, ordinary £4 per ton. The Rye grass sprang early. He had seen it one and a half yards high in April. It was eaten by cattle at all seasons, and did not purge. For soiling purposes in England, he had seen it mowed on 1st April. The Orchard grass, extensively sown in America, was not approved of in England. A few pounds were sometimes sown at seeding time.

Mr. A. Clement did not regard the Italian Rye grass as affording good pasture. He acknowledged that it had an early start. He had seen it this season a foot high in patches in the city.

Mr. H. Ingersoll reminded the Society that the value of hay differed in the two countries. Our Timothy had not met with much favor at the London stables. Here it brought the highest price. When it sold at $20 a ton alone, mixed with half clover it was rated at $15.

Mr. C. W. Harrison inquired if cattle fed on Rye grass hay, second cutting, slobbered or were salivated; other grasses caused the affection in this country.

Mr. Cook stated that such salivation was unknown in England.

Dr. Emerson remarked that the disease, if so it might be called, was ascribed, not to the grass, but to certain milky weeds. He felt more disposed to attribute it to the clover seed, which produced salivation in the human subject, when given in decoction.

Dr. King had not observed cows salivated by the after-grass.

Mr. I. Newton's observations so far from agreeing with those of Dr. King, had taught him that cows were so affected.

Mr. Newbold mentioned that the Rye grass on Mr. Reybold's farm, had been first brought from England about fifteen years ago, by a Mr. Blandon.

cure. Just glance at the lights in the house in which you find the leaves all black and foul—not very transparent, are they? And here is one reason, no doubt, why the plants are in the state they are. The laps are all filled with a gelatinous vegetable production, which is sure to make its appearance along with damp and dirt. And the outside surface of the glass is covered with all the various matters which, floating about in the atmosphere, are from time to time deposited upon it, And so light is shut out. Light is life; be that never forgotten. Everybody believes it, and yet hardly anybody acts upon his belief. The glass of the greenhouse is allowed to get dirty, and to continue dirty; and the plants being shut out from the vivifying and purifying influence of the light, become drooping and diseased. The remedy is at hand—soap and water still, and not in homœpathic doses either. When the plants are housed in autumn, or before they are housed rather, let every bit of glass, whether in the roof or side-lights, and every inch of the building besides, have a thorough out-and-out cleansing; and if necessary, as it undoubtedly will be, clean the glass again during the winter. It is not the cold that we have to fear. That is easily kept out; and where one plant perishes from cold, a dozen perish from the damp and dirty and mouldy condition they get in through the want of light.

But we must come down a little, and look at the state of the surface-soil in the pots. Why, that is completely covered with a growth of conferva, and looks a good deal greener than the leaves; and I should be disposed to say, if a gardener thinks to grow plants this way, he must be *greener* than either. For how can you see whether a plant requires water or not? and of all the causes that render winter cultivation of plants a failure, none is more effective than negligent watering. And then how can the air penetrate to the roots? You have hermetically sealed the soil, and yet you expect the plant to grow. Get all this mass of green scraped off, and throw a little fresh soil on the top: that will be something like; and the improvement in appearance will be fully equalled by the improvement in reality.

In fine, it is impossible to say too much about cleanliness in everything that relates to the management of plants. Without it, all effort and expense will be thrown away; with it, a great deal which is commonly deemed essential may be dispensed with.

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Mr. Cook thought that the plant had been unknown in England until about that time.

Dr. A. L. Kennedy, in reply to a question from the Chair, mentioned that there were three species of Lolium growing in this country. The Italian Rye or Ray grass was the *Lolium multiflorum.*

The President said there was no doubt that the Italian Rye grass thrived in this climate. It furnished pasture several weeks earlier than the *Poa* family. It was less exhausting than Timothy. He invited an expression of opinion on the subject of subsoiling. He believed that in England the practice was not regarded with as much favor as formerly.

Mr. Cook said that with shallow draining, say one to two feet deep, subsoiling possessed value; but the present method of draining, three to four feet in depth, superseded the necessity for subsoiling. He had abandoned the practice entirely since he began to drain deeply.

Mr. Gustavus Engle had a neighbor who subsoiled for corn, with great success. The surface soil was light, the subsoil a yellowish loam, not tenacious. The first plowing was four inches deep, the second nine. Mr. E. had never seen finer corn.

Dr. King had experimented in subsoiling land previously drained. He did not think that draining superseded the necessity for subsoiling. Land which, with drains two feet deep had yielded in 1852, but ten bushels of corn per acre, was sown with oats the following year, after a portion had been subsoiled. On this, although the whole was otherwise similarly treated, both head and straw were much fuller. The present season the wheat on the part subsoiled, looks far better than that on the portion which had been merely drained. His subsoil is a stratum of clay four feet thick.

The President admitted that root crops required a loose soil, but questioned if herbaceous plants sought food very far beneath the surface.

Dr. Emerson had seen the roots of wheat three feet long. He would inquire what root crops were preferred in England.

Mr. Cook.—The purple-top Swedish turnip, which on land impoverished by continuous grain cropping, will, with three to four cwt. of guano per acre, yield thirty to forty tons of roots, tops off. These turnips are fed whole to stock. A large ox will fatten on a weekly ration of ten to fifteen cwt. of Swedish turnips and barley straw. The white turnip is seldom used. The average weekly allowance of a bullock may be twelve cwt. turnips and sixty lbs. straw, equal to two cwt. hay and three bushels corn. The corn being taken at seventy lbs. the bushel.

Mr. Newton preferred a mixture of turnip and Indian meal. Bullocks would fatten half as fast again, on a mixture, say half and half, than on either alone.

Mr. Ingersoll insisted that we forgot differences in climate. Our turnips, as food, are not equal to the English. Our cattle would not fatten on them alone, although cows might be kept in condition.

Mr. Harrison thought that root crops were overrated in America. Grain was certainly cheaper in the end.

Mr. Cook hoped that members would not lose sight of the fact that grain impoverished the soil, while roots enriched it and left it in fine order.

Mr. Newton specified two bushels of corn and one and a half bushels turnips per week for a bullock of a thousand weight. Sheep fed on roots alone yielded mutton of inferior quality, by no means comparable in flavor to that from sheep fed on a mixed diet.

On motion of Mr. Ingersoll, that the further discussion of the subject be postponed until next meeting; which was so ordered.

A communication was received from Marshall P. Wilder, President of the American Pomological Society, inviting the election of delegates to the next annual meeting of the Pomological Society, to be held in Boston.

Dr. Kennedy submitted for action at next meeting, a resolution, providing that new members, on the payment of one dollar, be furnished with a framed certificate of membership.

On motion, adjourned.

PENNSYLVANIA HORTICUTURAL SOCIETY.

April 18, 1854.—The stated meeting was held as usual this evening.

The President in the chair.

The following premiums were awarded by the Committee on Plants and Flowers: Azaleas, six plants, for the best to Robert Buist; Hyacinths, six varieties, for the second best to John Pollock, gardener to James Dundas; Cinerarias, six varieties, for the best to Robert Buist; for the second best to Henry A. Dreer; Pansies, ten plants, for the best to Chas. Miller; collection of twelve plants, for the best to Robert Buist; for the second best to Jerome Graff, gardener to Caleb Cope; specimen plant, for the best to Robert Buist; for the second best to John Pollock; New Plants, a premium of $3 to Robert Buist for a general Collection; and $2 to Jerome Graff for two Orchids; basket, for the best to the same; Bouquets, one pair, for the best to the same. Special premiums, $2 for a fine display of plants to

Peter Raabe; $1 for a specimen of Diclytra spectabilis, to the same; $3 for fine Calceolarias and Auriculas, to Charles Miller; $2 for a collection of Cinerarias to John Pollock; $1 for a collection of Calceolarias to Henry A. Dreer; $5 to John Sherwood for a fine seedling Camellia of large size and distinct color. The committee called special attention to several cut Camellias, sent by Miss Percival, taken from an American seedling which had grown out for several years in a northern exposure of a garden wall; she has only succeeded in flowering American seedlings.

By the Committee on Vegetables—Sea Kale, six heads, for the best to James Logan, gardener to Owen Jones; Rhubarb, twelve stalks, for the best to Thomas Croft. And a special premium of $2 to Jerome Graff for a dish of Tomatoes. The committee noticed a fine bunch of Asparagus from I. B. Baxter.

The Special Committee appointed to solicit from Dr. W. D. Brincklé, a reconsideration and withdrawal of his resignation, report that he had consented to its withdrawal.

A communication from Peter B. Mead, Recording Secretary of the New York Horticultural Society, was read: purporting that their society had appointed a committee to take measures in connection with other Horticultural Societies, for procuring the seeds of shrubs, trees, &c. (especially the Coniferæ), indigenous to Oregon and Upper California, and desiring a co-operation on the part of our society; the subject was on motion referred for consideration to the Committee for the Distribution of Seeds, &c.

A preamble and resolutions in relation to a publication of an excepted portion of the last Ad Interim Report of the Fruit Committee, were referred to a special committee.

On motion, Ordered, That the Ad Interim Reports for the future be submitted to the society in manuscript before being printed.

On motion, Ordered, That a special committee be appointed to consider and recommend some means to establish a flower market.

Members Elected.—Morris Hacker, Thomas Robertson and John B. Roudet.

Objects Shown.

Plants—By Robert Buist—New and shown for the first time: Burlingtonia rigida, Eriostemon intermedium, Leschenaultia biloba, Rhododendron ciliatum, Begonia semperflorens, Cantua dependens, Deutzia crenata, Epacris densiflora, Tropœolum minus; also fancy Geraniums—Captivation, Caliban, Wintonia, punctata and odorata. Geraniums—National, Eleanor, ocellatum and Hendersonii; twelve plants—Polygala dalmatiana, Cytisus fragrans, C. hybrida, Kennedya monophylla, Mahernia odorata, Erica ovata, E. cylindrica, Epiphyllum, Azalea lateritia, A. speciosissima, Rhododendron javanicum, Begonia hydrocotylifolia; Azaleas—Prince Albert, variegata, Maitlandii, Smithii coccinea, alba maculata, and lateritia; six Cinerarias, Mary Ann, carminita, Madame Sontag, Lady Rush, David Copperfield and Catharine Hayes.

By Jerome Graff, gardener to C. Cope—*New Plants*: Oncidium species and Brassia lanceana; twelve plants—Azalea Copei, Cuphea platycentra, Oncidium altissimum, Allamanda nereifolia, Rhincospermum jasminoides, Cineraria King, Indigofera decora, Centradenia floribunda, Hypocytra strigilosa, Petunia Hebe, and two Cineraria Seedlings.

By Peter Raabe: Diclytra spectabilis, and a number of small plants.

By John Pollock, gardener to James Dundas: Allamanda nereifolia, six Hyacinaths and six Cinerarias.

By Charles Miller: Seedling Calceolarias, Auriculas, Pansies, Nemophilas, Mimuli, Fuchsia and Camellia.

By H. A. Dreer: Six Calceolarias and six Cinerarias.

Bouquets, etc.—By Jerome Graff: A Basket and two hand Bouquets.

Vegetables—By Jerome Graff: A dish of Tomatoes.

By Isaac B. Baxter: Asparagus and Rhubarb.

By Thomas Croft: Several kinds of Rhubarb.

By James Logan, gardener to Owen Jones: Sea Kale.

May 16, 1854.—The stated meeting was held as usual this evening.

The President in the chair.

Premiums were awarded as follows, by the Committee on Plants and Flowers:

Pelargoniums, eight plants, for the best, and for the best specimen Pelargonium, to Robert Buist; Cinerarias, eight plants, for the best to Thomas Richardson, New York; Roses, twelve plants, for the best and for the second best to Frederick Allgeier; Tulips, cut flowers, for the best to Geo. W. Earl; collections of plants, for the best to John Pollock, gardener to James Dundas; for the second best to Robert Buist; for the third best to Thomas Robertson, gardener to B. A. Fahnestock; Specimen Plant, for the best to John Pollock; for the second best to James Kent; New Plants, shown for the first time, a premium of $4 to Robert Buist for Orchids, Geraniums and Begonia Xanthina, a premium of $1 to John Pollock for Orchids; Table Design, for the best to Jerome Graff, gardener to C. Cope; Basket, for the best to the same; for the second best to A. Burnett, gardener to H. P. McKean; of indigenous flowers, for the best to Meehan & Saunders; Bouquets, pair, for the best to Jerome Graff; for the second best to James Kent. Special premiums, to Charles Miller $3 for a general collection of plants; to John Pollock $2 for Gloxinia and other plants; to Thomas Richardson, New York, $2 for beautiful Calceolarias; to John Sherwood $2

for a collection of Roses; to Wm. Sinton, gardener to Dr. Rush, $5 for a beautiful collection of miscellaneous plants; to Isaac Collins, gardener to Gen. Patterson, $3 for two very fine specimens of Strelitzia regina; the attention of the society was called to a good collection of cut flowers from Mrs. Holbrook, New York, David Scott, gardener.

By the Fruit Committee—Special premiums, to Albinus L. Felten $3 for a fine collection of Strawberries in pots with ripe fruit; to Jerome Graff, gardener to C. Cope, $2 for four bunches of Black Hamburg Grapes; and to H. N. Johnson $1 for seven very fine Lemons. The committee noticed a dish of very fine Apples for Dr. E. S. Hull, of Alton, Ill.

By the Committee on Vegetables—Rhubarb, for the best twelve stalks, to Samuel Cooper; Asparagus, for the best twenty-four stalks, to James M. Tage, Burlington, N. J., and for the second best to Jerome Graff; display by a market gardener, for the best to A. L. Felten; and a special premium of $1 to Jerome Graff, for three dishes of very fine Tomatoes.

The Committee for the distribution of Seeds, &c., reported, that they considered it inexpedient for our society to join in the proposed plan of the New York Horticultural Society in procuring the seeds of trees, shrubs, &c., indigenous to Oregon and Upper California; which report was accepted.

The Special Committee on the Flower Market reported that they deemed it inexpedient for the society to take action at this time.

The chairman of the special committee, to whom the preamble and resolutions submitted at the last stated meeting in relation to the publication of the excepted portion of the Ad Interim Report of the Fruit Committee were referred, reported verbally that there were no instructions accompanying the reference; and after various motions and considerable discussion, the committee was discharged from further consideration of the subject.

Member Elected—William Thompson.

Objects Exhibited.

Plants—By Robert Buist—Shown for the first time: Dendrobium Cambridgeanum, D. Boothii, Tropæolum speciosum, Begonia Xanthina, Fancy Pelargonia—Argus, Gipsy Queen and magnum bonum; Cattleya labiata, Maxillaria lutescens, Azalea Maitlandii, A. variegata, A. lateritia, Cineraria, Adelia Villars, Tropæolum tricolorum, Ixora coccinea, Sollya heterophylla, Allamanda nereifolia, Tremandra verticillata, Erica ovata, Epacris lævigata, Pelargonium Royalist; Specimen, Cuphea platycentra—Pelargonia, Virgin Queen, Mary, Ninon de L. Enclos, Ondine, Sir Henry Smith, Admiration, Fancy, Parodi, and Specimen Ytolmskii.

By John Pollock, gardener to James Dundas—Shown for the first time: Shomburgkia lilicina, Stigmaphyllon ciliatum, Cuphea platycentra, Allamandra nereifolia, Nierembergia, Fuchsia expartera, F. Voltigeur, F. Snow drop, Gloxinia caulescens, four Calceolarias and Dendrobium nobile; and a collection of Gloxinias.

By Wm. Sinton, gardener to Dr. James Rush: A large and fine collection.

From Thomas Richardson, New York: A fine display of Cinerarias and Calceolarias.

By Thomas Robertson, gardener to B. A. Fahnestock: Cuphea platycentra, Fuchsia alba, F. Pearl of England, Gloxinia Fyfiana, G. Scottii, G. Albo—sanguinea, Torenia asiatica, Ceropegia elegans, Leschenaultia formosa, Hydrangea hortensis, Justicia carnea, Pelargonium—Mazeppa superba, Azalea Verschafeltii, Mahernia Diana and M. Hector.

By Isaac Collins, gardener to Gen. Patterson: Two fine specimens of Strelitzia regina, with a large collection of choice plants.

By Frederick Allgeir: A large table of fine Roses.

By John Sherwood: Roses—Reine des Fleurs, Dr. Arnot, perpetual Proudhomme, Coronet, Antigone, Compte Robinsky, Mrs. Elliott, Jaques Lafitte, Gloire de Paris, Princess Helen, Pius IX, Baron Prevost, Geant de Battailles, Reine, Mathyld, Delphine gay, lilacea and Amanda Patte-notte.

By Jerome Graff, gardener to C. Cope: A large specimen of a yellow Banksia Rose.

By Charles Miller: An extensive table of Calceolarias, Senecios, Mimuluses, &c.

By Messrs. Gray: A beautiful dwarf Azalea.

By Alex. Parker: A collection of small plants.

By G. W. Earl: Cut Tulips and Anemones.

By David Scott, gardener to Mrs. Holbrook, N. Y.: Cut Calceolarias.

By R. Robinson Scott: Cut indigenous flowers.

By Meehan & Saunders: Castilleja, species with yellow flowers.

Designs, Bouquets, etc.—By Jerome Graff, gardener to C. Cope: A table design, a basket of cut flowers, and a pair of hand Bouquets.

By Alexander Burnett, gardener to H. Pratt McKean: A fine basket.

By James Kent: A pair of hand Bouquets.

By Meehan & Saunders, Germantown: A basket of indigenous flowers.

Fruit—By Albinus L. Felten: Strawberries in fruit, growing in pots, Princess, Alice Maud, Hovey, Moyamensing, Burr's New Pine, Hudson, M'Avoy's Superior, Washington, Early May, &c.

By Jerome Graff: Four fine bunches Black Hamburg Grapes.

By H. N. Johnson, Germantown: Seven Lemons, one of which weighed 1 pound 2 ounces.

From Dr. E. S. Hull, Alton, Ill.: Newtown Pippin Apples.

Vegetables—By Albinus L. Felten: A large table of excellently grown vegetables.

By Samuel Cooper: Rhubarb, very fine and large.

By James M. Tage, Burlington, N. J.: Superior Asparagus.

By Jerome Graff: Three plates of Tomatoes and Asparagus.

MASSACHUSETTS HORTICULTURAL SOCIETY.

SATURDAY, MAY 27, 1854.

The Society met pursuant to adjournment. The President presented a report from the Executive Committee, and, on his motion, the matter was recommitted.

The following gentlemen were appointed a Special Committee to consider the policy of a sale of the Society's property in School Street, and of purchasing another site for a Hall: The President, and Messrs. Wilder, Walker, French and Stickney.

W. S. King, Chairman of a Special Committee appointed for the purpose, offered the following

REPORT.

The Select Committee appointed by this Society to examine into all the circumstances attending the award to Messrs. Hovey & Co. of a Gold Medal for a seedling cherry, and a gratuity of $20 for a seedling pear, report the following facts:

That at the last meeting of the Society (in 1853), previous to the incoming of the newly-elected Officers and Committees, the Chairman of the Fruit Committee presented a draft of his report, which was recommitted to him for completion. That in the draft of report so submitted, no mention was made of any award of medal or gratuity to Hovey and Co.; nor up to that time—the last day of their existence—had the question of such awards been discussed in committee.

That after the adjournment of the Society on the day above-mentioned, and after the departure of the Chairman of the Fruit Committee, C. M. Hovey called together three members of the committee (which consists of seven members) and urged upon them, very strenuously, the merits of the seedling cherry, which he claims to have originated, and of the pear, which he claims to have introduced. That two of the three members were of opinion that the cherry had not been exhibited for five years, as required by the rules of the Society. This position was controverted by Mr. Hovey, who also contended that his seedling was conceded to be the best that had been exhibited.

Your Committee understand that, when the matter was pressed to a vote, one member (of those present) declined to vote, one other voted for the award of a medal with the proviso that it should be proved to have been

exhibited for five years, and the other member voted for the award without conditions. The vote upon the pear was about the same.

The Committee are further informed, that the first intimation received by some members of the Fruit Committee that such awards were even contemplated, was obtained from the printed Transactions of the Society.

In the opinion of your Committee, this conduct on the part of a competitor for the highest premiums of the Society ought not to pass unrebuked. Not only is it subversive of all order and good government that committees should be called together without proper authority, but the offence is magnified when the person usurping the powers of the chairman is himself the claimant before the committee—a party to a suit, before judges whom he may select for himself, and the ex-parte advocate of his own interests. The Society is wronged, because their rules are trampled upon; the Committee is wronged, because they are deprived of the benefit of a full discussion and of time for consultation; the unnotified members are wronged, because they are allowed no voice in the decision; the members present are wronged, because they are subjected to the personal solicitations and persistive pleadings of the applicant; other competitors for the premiums are wronged, for their claims are pushed aside; the public is wronged, because it accepts as the well-considered action of the Society what is, in truth, but the opinions of one or two members, hastily convened and hurried to a decision by the party most interested.

If this instance of irregularity which has been brought to the notice of the Society is suffered to pass without censure, your Committee believe that the public will regard with diminished confidence the decisions of the Society; for they will, with reason, suspect that our medals and gratuities for new varieties of fruit, flowers and vegetables are indices rather of the adroit management of the applicants than of merit in the articles. The number of exhibitors at our shows and of competitors for premiums will be sensibly diminished; for modest merit will have no chance against unscrupulous assurance. Already complaints, "not loud, but deep," have been heard, that rules, which are stringently enforced against some members, are broken with impunity by others.

In view of the facts above stated, your Committee present the following resolutions for your adoption:

Resolved, That the conduct of C. M. Hovey, a member of this Society, in procuring the award to Hovey & Co. of a gold medal for a Seedling Cherry, and of a gratuity of $20 for a Seedling Pear, was irregular and improper, and is censured by this Society.

Resolved, That a committee of three be appointed, by nomination, to examine and report what, if any, alterations are needed in our Constitution or By-Laws to prevent a repetition of such a transaction.

Signed, WILLIAM S. KING,
SAM'L WALKER.

This report, with the annexed resolutions, after an interesting argument of more than two hours' duration was adopted, at an unusually full meeting, with but one dissentient voice.

R. Morris Copeland, of Roxbury, then moved to a reconsideration; which motion was lost.

The following Committee was then appointed to act under the second resolution: Messrs. B. V. French, Samuel Walker and R. Morris Copeland.

Adjourned to June 3d, at 11 o'clock, A. M.—*Practical Farmer.*

A VISIT TO ROSEDALE.

Every one who has a taste for gardening, and a very great number who have not, have heard of the horticultural establishments, in this city, of Mr. Robert Buist. Our recollection of his place in South Twelfth street, where his green-houses were, and of another a few squares below, where the Roses and Dahlias were raised, dates back, perhaps, eighteen years, a period which may be considered a long time in the writer's case, as it embraces two-thirds of his life. We recollect the immense double white Camellia, and the first Butterfly flower (*Onciduim papilio*,) which astonished us. But that was some years ago, as we have said. Since then, this Nursery, driven out of town by want of room, has been removed to a distant (comparatively) part of the county.

On the Darby road, within four or five miles of the Market street bridge, we come to a relic of Pennsylvania antiquity, the old Swedes' church of Kingsessing, which is situated at the corner of the road and a lane which leads to the Rosedale Nurseries. Turning down this lane, we come, in a short time, to the place we set out for. A tasteful cottage and an immense quantity of glass houses are before us. More than 20,000 feet of glass; larger than any other place in the United States. Looking around, you catch a gardener and press him into service; or, if you are lucky, the proprietor himself. We say, if you are lucky, for the director of such a business as is carried on here, has but little time to spare. Under such guidance

you can walk through the houses and grounds. The show-house stands on the northern side. In it are arranged a great variety of plants in flower and specimens. In another section are magnificent plants of Acacias of many species, which, whether in bloom or not, are a treat to look at. Going further, we see a fine collection of Heaths, Epacrises, and miscellaneous plants. Two large houses contain the stock of Camellias, perhaps one of the largest here. You can find every variety, from the oldest favorites to the latest introduction from England or the Continent.

In the other houses (of which there eight or ten,) is found everything in the plant way, from the Oxalis to the Victoria regia.

One house, or section of a house, is devoted to Orchids. This is very tastefully arranged; it is lined with rough bark, and on knots and stumps projecting from the sides and staging, are planted some of the rarest and most beautiful of that singularly beautiful order, mixed with Ferns and Lycopodia. Among the Orchids are beautiful specimens of the much-varied Cattleza Mossiæ, which we have seen frequently in bloom there—Maxillaria, Epidendrum, Dendrobrium, Vanda, Catasetum, Cypripedium and other genera are represented. The most striking Lycopodium is the L. cœsium arboreum, a running species, with intensely metallic blue lustre on the fronds.

The grounds attached to this Nursery cover about one hundred acres. A large lot immediately around the houses is devoted to the growth of herbaceous plants and shrubs. On the other side are the fruit and ornamental trees. The lawn around the house is planted with the newest evergreens, where their hardiness has been tried for several winters.

At another time we shall specify some of the rare and fine plants in the collection.

MEDINILLA MAGNIFICA.

The noble foliage and immense drooping racemes of gay-colored flowers belonging to this plant, render it both striking and attractive; and blooming, as it does, in early spring, and very freely, it is well deserving of a place in every collection. It is, however, of a strong, robust habit, and requires a warm moist atmosphere to grow it successfully, so that it is hardly suitable for persons of very limited accommodation; but, where it can be afforded sufficient space, it forms a truly magnificent object, and its flowers remain long in perfection.

Cuttings selected of rather firm bits of the young wood root freely if planted in sandy peat, afforded a brisk bottom heat, and covered with a bell-glass, to prevent their being injured by excessive evaporation. When fairly rooted they must be potted singly, in small pots, placing them in gentle bottom heat, in a warm moist situation, and shading them from bright sunshine till well established in their pots. But beginners will probably prefer procuring young plants from the nursery to propagating for themselves, and this cannot be done at a more favorable season of the year than the present. Supposing plants to be obtained in this way, on receiving them examine the state of the roots, clearing away all sour or unkind soil, and repotting in convenient sized pots, according to the state of the roots, &c. Use good, strong fibry peat, carefully broken up, and intermixed with a liberal quantity of sharp silver sand, to ensure perfect drainage. Place the plants in a close, moist, warm temperature, shading them from bright sunshine, and giving water at the roots very carefully until they become well established, but syringe lightly morning and evening, shutting up the house early in the afternoon—and if convenient to afford the plants a gentle bottom-heat during the growing season, this will greatly assist in securing a vigorous root action and rapid growth. If all goes on well the roots will soon be found to have filled the pots, and shifting should be attended to before the growth is checked, regulating the size of the shift by the time that the plants will have for making growth before winter. Use the same compost as recommended above, with the addition of a small portion of sandy turfy loam. It is not desirable to force this plant into a low bushy habit, at least I consider that its large racemes of flowers are seen to more advantage when somewhat elevated, and this is more conveniently done by allowing the plant to assume rather an erect habit, than by keeping it tied out in the form of a dwarf bush, and having to keep the pot on a pedestal while the plant is in bloom. If the plant is kept in vigorous health it will throw out side shoots freely with very little attention to stopping or training. Every care must be exercised to preserve the foliage in perfect health, as upon this the beauty of the specimen largely depends. The matured leaves are liable to be disfigured by black thrips, and green-fly seems to have an especial liking for the buds and young leaves, and will soon do irreparable damage, unless destroyed by the prompt application of tobacco smoke. The plants must be prepared for winter by gradually lessening the amount of moisture in the atmosphere, affording a freer circulation of air, &c., to ripen the young wood. In winter they should be placed in a house where the night temperature may average about 55°, giving water sparingly to the soil, and taking

every care to protect the foliage from being injured by damp or insects. To secure large specimens it will doubtless be necessary to afford the plants another season's growth before blooming them, and in this case they may be treated as recommended above, taking care to get the growth completed early in autumn, in order to get the wood well matured before winter, for unless this is attended to there will be little chance of the plants blooming freely. If it is desirable to have a plant in flower early in spring, it must be plunged in bottom-heat, and should not be too freely supplied with water until the flower buds are perceptible. Keep the plants well supplied with water at the root while in bloom, and shade them from bright sunshine. In this stage they may be removed to a close part of the conservatory, or show house, provided a rather dry atmosphere, and a temperature of from 45° to 55° can be maintained. After blooming, the plants should be removed to a growing temperature, slightly cut back if necessary, repotted, and encouraged to make active growth.—Alpha.—*Gardeners' Chronicle.*

H. C. Hanson, Esq.—Provided you should deem the following inquiries matter of general interest to your readers, and that the claims of the profession will so far allow you to divulge the mysteries of the propagation house, you would greatly oblige and aid an amateur in his first efforts, by giving in your second or third proximate number, some simple directions for the propagation of Roses by Cuttings—such as Season—Choice of Slips—Soil—whether plant out or in pots—in the open air or in rooms—whether use Bell glasses, and how manage them—watering—signs of success—how soon cuttings will strike—what families succeed best—how far Bourbons and Remontants will succeed—or any physiological cause for their failure.

Respectfully yours, New Subscriber.

There are two periods of the season, June and September, in which this mode can be adopted extensively and successfully, with the families of Bengal, Tea, Noisette, Bourbon and Remontants Roses. (Perpetual succeed best by budding.) In May or June, as soon as the young shoots have shed their first flowers, they will be in a proper state for use. The cuttings may be made from two to four inches long, having at least three joints or buds, from the lower end of which cut off the leaf, and smooth the bottom end with a sharp knife, directly under an eye, leaving the other leaves untouched; the cuttings may then be inserted about one and a half or two inches into very sandy soil, either in pots or in the ground; if in a frame, so much the better. Shade them from the sun during the day, and give them gentle sprinklings of water. They must also be protected from heavy drying winds,

and fully exposed to the dews of the night, which are very genial to them. In about three or four weeks they will be rooted, and may either remain where planted till autumn, or be at once transplanted into pots, and placed in the shade till they have taken fresh root. These cuttings will make fine plants for the next season, and by extra culture may be made fine plants for blooming in the green house during the winter. Cuttings taken off in September, and planted in a very shady situation, will be well rooted in the following spring, and may then be transplanted into any part of the garden. The latter period will be the best for all the Southern States, and the former for the Eastern States. Indeed, cuttings can be taken off, and may be propagated successfully, at any period of the season, when the plant has just ceased to bloom, which is the grand criterion for propagating the rose. In some soils, of a close sandy nature, all that is required is merely to put in a small piece of a shoot, in moist, cloudy weather, where it is shaded from the direct rays of the sun, and it will root in a few weeks without any other care.

Where there is the convenience of a forcing house, or hot bed of manure, there is another period of the season when the rose may be extensively propagated, which is practised to a very great extent by nurserymen who commence forcing roses in February. As soon as they show bloom, the shoots are cut into cuttings of two eyes each, and planted into very small pots, of very sandy soil; these are placed into a close, warm hot-house or hot-bed, in a moist temperature of 70° to 80°, where they will root in from two to three weeks, and are frequently sold within six weeks from the time they were planted.

The above is taken from "Buist on the Rose," the fourth edition of which has just been published. To the amateur or other person, who needs a description of the best varieties, and instructions in growing and propagating the different kinds, this book is indispensable.

FURTHER NOTES ON CEREUS GIGANTEUS OF SOUTHEASTERN CALIFORNIA, WITH A SHORT ACCOUNT OF ANOTHER ALLIED SPECIES IN SONORA.

BY DR. GEORGE ENGELMANN, ST. LOUIS, MO.

Specimens of flowers and fruit, together with interesting notes and drawings communicated by Mr. George Thurber, and specimens of ribs of the plant with spines presented by Dr. Parry, enable me to perfect the history of this giant Cactus. Mr. Thurber traveled through the Gila country and Sonora, as one of Mr. Commissioner Bartlett's party, in the summer of 1851, and is believed to be the only scientific gentleman who has seen the plant in question in flower. These materials enable me to furnish the following detailed character:

CEREUS GIGANTEUS, *Engelm.*: erectus, elatus, simplex, s. ramis paucis erectis caule cylindrico versus apicem sensim attenuato brevioribus candelabriformis; vertice applanto tomentoso; costis ad basin caulis sub-12 versus apicem 18–20 rectis obtusis (vetustioribus ad caulis basin obtusissimis) subrepandis; sinubus ad basin caulis latissimis versus apicem profundis angustioribus angustissimisque; areolis prominentibus ovato-orbiculatus junioribus albido-tomentosis; aculeis rectis basi valde bulbosis tenuiter sulcatis angulatisque albidis demum cinereis, radialibus 12–16 imo summisque brevioribus, lateralibus (præcipue inferioribus) longioribus robustioribus subinde cum aculeis adventitiis paucis setaceis summo areolæ margini adjectis; aculeis centralibus 6 robustis albidis basi nigris apice rubellis demum totis cinereis, 4 inferioribus decussatis quorum infimus longissimus robustissimus deflexus, 2 superioribus lateralibus brevioribus; floribus versus apicem caulis ramorumque sparsis, tubo ampliato breviusculo petalisque patulis; ovario ovata sepalis 25–30 squamiformibus triangulatis acutis in axilla fulvo-villosis stipato; sepalis tubi sub-30 orbiculatosubtriangularibus mucronatis, inferioribus in axilla lanigeris, superioribus nudis, sepalis intimis 10–15 spathulatis obtusis carnosis (pallide viridibus albescentibus); petalis sub-25 obovato-spathulatis obtusis integris crispatis coriaceo-carnosis crassis (flavescentialbidis); staminibus numerosissimis, filamentis superiori tubi parti adnatis (inferiore nudo); stylo stamina paulo superante; stigmate multifido; bacca obovata squamis sepaloideis triangularibus carnosis minutis ad axillam fulvo-lanatis stipata, pericarpio duriusculo carnoso, demum valvis 3–4 patentibus reflexisve dehiscente; seminibus numerosissimis in pulpa saccharina nidulantibus oblique obovatis lævibus lucidus exalbuminosis; embryone cotyledonibus foliaceis incumbentibus hamato.

This species ranges from north of the Gila river southwardly into Sonora, to within twenty miles of Guaymas on the California Gulf. It doubtless also occurs on the Peninsula of California; where, according to Vanegas in his history, published about a hundred years ago, the fruit of a great Cactus forms an important article of food to the natives of the eastern coast, the harvest time of which was a season of great festivity. The flowers are produced in May and June, and the fruit ripens in July and August. Mr. Thurber collected the last flowers and the first ripe fruit in the beginning of July. He has collected abundance of seed, and will be pleased to communicate it to those who take an interest in the cultivation of Cacti. The youngest plants, Mr. Thurber noticed, were three or four feet high, with narrow furrows and long spines; the smallest flowering plants were about

twelve feet high, and the tallest specimens observed appeared to reach the elevation of forty-five or fifty feet.

The ligneous fascicles correspond with the intervals between the ribs, and not with the ribs themselves; of which Dr. Parry has fully satisfied himself, and which indeed is the case in all ribbed Cacti. From between these bundles ligneous fibres radiate horizontally towards the ribs, and especially to the areolæ.

At the base of the stem the ribs are broad and obtuse, with wide and shallow intervals; upwards the ribs are somewhat triangular, rounded or obtuse, with deep and acutish grooves between them; towards the top of the plant the ribs are equally obtuse, but quite compressed, and the grooves are deep and narrow.

The elevated areolæ are seven lines long, nearly six lines in diameter, about an inch distant from one another, sometimes more closely approximated.

Lowest and upper radial spines 6 to 12 lines long, sometimes the upper ones with a few additional, shorter, flexuous, setaceous spines: lateral ones 12–18 lines long, the lower ones longest; the four lower central spines straight or very slightly curved downwards, 20–30 lines long; the two upper central spines 15 to 18 lines long. The stoutest spines are one line in diameter, their bulbous base being fully twice as thick. The old spines together with the whole areola readily come off in one bunch, but generally the six central spines fall off first, leaving the radiating ones appressed to the stem, till finally they also fall away.

The flowers are produced near the summit of the plant, but not on it, and the fruit is usually 6–12 inches from it.

The dried flower communicated by Mr. Thurber is 3 inches long; but the drawing represents the flowers as fully 4 inches in length and diameter. The ovary in the dried specimen is $\frac{3}{4}$ths of an inch long; the lower naked part of the tube 1 inch, the upper staminiferous much widened part $\frac{3}{4}$ths of an inch long. Upper sepals fleshy, greenish white, $\frac{3}{4}$ths of an inch long, below 2, above 4 lines wide. Petals of a light cream color, an inch long, 6–7 lines wides above, very thick and fleshy, and very much curled. Filaments light yellow, adnate to the upper half of the tube: anthers 0·8 to 0·9 of a line long, linear, emarginate at the base and apex. Style not seen: the drawing represents the numerous (15–20?) stigmata as half an inch long, suberect, of a green color. The flowers appear to be open night and day, and probably for several days in succession.

The fruit sent by Mr. Thurber (in alcohol) is obovate $2\frac{1}{2}$ inches long, by $1\frac{1}{2}$ in diameter, beset with about thirty scales, having short brownish wool in their axils, but entirely destitute of spines. Mr. Thurber informs me that this specimen is unusually long; the fruit, he says, is usually 2 or 3 inches long by $1\frac{1}{2}$ to 2 in diameter; the color is green, reddish towards the summit; the remains of the flower fall off, leaving a broad and convex scar. The pericarp has the hardness of a green cucumber, somewhat softer towards the apex, and is about two lines thick: it bursts open on the plant with three or mostly four irregular, interiorly red valves, which spread horizontally, and appear like a red flower when seen at a distance, which accounts for the report of this species having red flowers. The crimson-colored and rather insipid pulp has the consistency of a fresh fig; it completely separates from the rind, and drying up from the heat of the sun, falls to the ground, or is beaten down, when it is collected by the natives and rolled into balls, which keep several months, or is pressed for the thick molasses-like sacharine juice which it contains. The innumerable seeds are 0·7 to 0·8 lines long.

Another, apparently nearly allied species, was collected in Northern Sonora. From the half of a flower before me, together with Mr. Thurber's meagre notes, (other specimens unfortunately having been lost) I have ventured to make out the following description:

Cereus Thurberi n. sp.): erectus, elatior, e basi ramosus sub-14-costatus, sulcis parum profundis, aculeis brevibus nigricantibus; floribus tubuloso-campanulatis virescenti-albidis; ovario globoso sepalis 80–100 carnosis squamiformibus triangularibus acutis imbricatis ad axillam villosis stipato; sepalis tubi inferioribus 24 lanceolatis acutiusculis axilla nudis, superioribus 20–25 orbiculato-obovatis obtusis; petalis 16–20 obovato-spathulatis obtusis crassis.

Collected in June, 1851, in a rocky canon near the mountain pass of Bacuachi, a small town on the road to Arispe, in Sonora; afterwards found with *Cereus giganteus*, near Santa Cruz: it abounds also near Magdalena and Ures. Santa Cruz appears to be the northern limit of this species, which does not extend to the Gila river. Stems four to twelve feet high, many from the same base, six to ten inches in diameter, sometimes articulated, occasionally branching above, with about fourteen ribs and shallow grooves. Flowers greenish white, borne about a foot below the summit of the stem. Dried flowers two and three-fourths inches long; the tube narrower, and more elongated than in *C. giganteus;* the globose ovary and the naked and staminiferous part of the tube each about three-fourths of an inch long; free part of petals of the same length, and four lines wide. Anthers

much larger than in the foregoing species, 1·3 to 1·4 lines long. Style not seen.

I have dedicated this to the collector, Mr. George Thurber, of Rhode Island, an excellent botanist, who has kindly furnished me with the materials for this article.

Cereus Thurberi and *C. giganteus* appear to be closely allied species. They have high and erect stems, flowers with a short tube, half of which is naked, the filaments occupying only the upper half of the tube; both have short and fleshy sepals on the ovary, with short wool in their axils, unaccompanied by any bristles or spines; in both the petals are whitish, obtuse and fleshy.

Both, and especially *C. giganteus*, stand very near the *Pilocerei* on account of the great height of the stem, the short ventricose tube of the flower, and the thick petals; but they have not the least indication of a *cephalium* (or woolly head) nor of any particular development of wool; their flowers spring from the axils of the ordinary and unaltered areolæ; and the seed is quite different, at least from that of *Pilocereus senilis*, the only species of that genus, I believe, which has been well examined; these seeds are said to be obliquely thimble shaped, densely dotted, and to have an embryo with thick globose cotyledons. It is also said that the filaments cover the whole inside of the tube of the flower, and even the free upper part of the ovary. In all the *Cerei* and *Echinocacti* examined by me, I find the lowest part of the tube free, the filaments being adnate to some distance above the ovary. It is not improbable that the Chilian velvety *Cerei* (*Velutini*, Pr. Salm.) are to be classed near our species. The flower of what appears to be *Cereus Chilensis*, Pfr., obtained near Valparaiso, and figured by the artist of the U. S. Exploring Expedition, greatly resembles that of *C. Thurberi:* it is a little larger, but has the same shape, and the same closely imbricated sepals on the ovary; the tube has about a hundred sepals, and the white petals are acute; whether fleshy or not is uncertain.

An excellent specimen of Medinilla magnifica has been in bloom at Mr. Robt. Buist's nursery, in the last two weeks. The plant was about three feet high, and had on it five spikes of flowers—some of which were twelve or fifteen inches long; the greatest beauty of these, is in the whorl of flesh-colored bracts which accompany each spike. The plant was exhibited at the exhibition of the Horticultural Society, but the beauty of the bloom had passed.

COLOR PLATE

ARALIA ? PAPYRIFERA. Hook.

ARALIA ? PAPYRIFERA. HOOK.

COLOR PLATE
INTENTIONAL SECOND EXPOSURE

ARALIA ? PAPYRIFERA, HOOK.

THE FLORIST
AND HORTICULTURAL JOURNAL.

ARALIA (?) PAPYRIFERA.

About twenty years ago, in the course of his botanical and horticultural researches in China, Mr. John Reeves procured a living specimen of the rice paper plant, and sent it to the garden of the Horticultural Society at Chiswick. Unfortunately, it died soon after without having flowered, and all which remained of this first discovery was the drawing of a sterile branch of the species, which was made in China from a specimen cultivated in Mr. Reeves' garden. It is this which we figure here under the name of Aralia (?) papyrifera.

Resting on a document not very clear, the knowledge of the paper plant of China was far from being precise. The small number of botanists who had an opportunity of seeing the drawing, hazarded nothing on the relations of a plant deprived of flowers and fruit, except doubtful and often contradictory conjectures. The opinions were especially divided between the Malvaceæ and Araliaceæ, and it is towards this latter family (joining with it, for greater latitude, the Umbelliferæ) that, according to Sir Wm. Hooker, Dr. Lindley inclined.

In the meanwhile, there arrived in the hands of Sir William Hooker the materials of the work already quoted, on the origin and the manufacture of the Chinese paper. Very much advanced, almost to completion, by the intelligent researches of Mr. Layton, the question was unfortunately obscured as to the botanical determination of the paper-bearing species, by too great a faith in the Chinese drawing, which gave for this plant a form shapeless and fantastic, different from any known object. This gross imposition of a malicious mystifier threw an unmerited suspicion upon the drawing of Mr. Reeves. But the evil was not great; rather these doubts served to give a lively and unforeseen attraction to questions, which, but for that, would have remained uninvestigated.

Renewing, with a meritorious zeal, the researches which had been inter-

rupted by the death of her husband, Mrs. Layton has been able to procure authentic specimens of the disputed plant. These specimens, shipped alive, have unluckily died on the voyage, but their remains have been enough to establish their identity with the drawing of Mr. Reeves, and it is also from these specimens, without flowers or fruit, that Sir Wm. Hooker has ventured to determine generically the species under the name of *Aralia* (?) *papyrifera.** The author admits, however, how much this conjecture has need of confirmation, and prudent botanists will not adopt it without a reservation. In any case, they will hardly fail to recognize an araliacious plant in one with soft wood, abundant and spongy pith, alternate leaves, fasciculate towards the top of the branches, long petioled, heart-shaped, lobed and palminerved, covered with a starry pubescence, and furnished with large stipules more or less adnate to the petiole. The doubt then is in the genus, and this can only, in a family so polymorphous in the vegetable organs, find its solution in the study of the characters of the flowers and fruits. Waiting this desired result, we will give some notes on the habitat, the dimensions of the plant, and the characters of its branches.

It appears that it is in the marshy forests of the northern part of the island of Formosa that this species is actually confined; nevertheless, adds Mrs. Layton, certain books (Chinese?) indicate at this time a second habitat, and more anciently in many localities in China. Although the specimen received at Kew had, from the crown of the root, a stalk of but 13 inches, and a diameter of but $1\frac{1}{4}$ inches, the dimensions of the grown plant are apparently those of a tree. At least the Chinese, sent to seek a plant, spoke always of the difficulty of transporting an entire "tree." On the other hand, a dried specimen, collected by Mrs. Layton for Captain Wm. Loring, who has generously given it to the Museum of Natural History at Kew, consists of a stalk (or rather branch) three feet three inches long, and which moreover does not represent an entire plant. The pith occupies in these branches or stalks comparatively greater space than in our European elder. The root is thick, fusiform, as woody as the stalks. The large stalk is striate or channeled, marked circularly with the annular scars made by the falling leaves; it presents on the transverse section a moderately thick zone of bark, then a larger one of pale wood, and last a thick disk of white medullary tissue. This pith in the thick stalks separates easily from the wood, but

* *A. (?) papyrifera:* caule inermo erecto striato annulato intus copiose albissimo medulloso, foliis terminalibus longe petiolatis amplis palmatim 5 lobis subtus precipue junioribus stellato sub-ferrugineo tomentosis lobis lateralibus bilobis terminali trilobo, omnibus acutis serratis, petiole vasi stipulis 2 magnis sublatis (aucto)."—Hook.

retaining a kind of reddish case, marked with longitudinal ridges, which fill up as many in relief on the woody tissue. Deprived of this rust-colored envelope, the medullary cylinders do not, by any means, offer equally a solid and continuous tissue; many of them present cavities, divided into compartments by partitions sometimes entire and sometimes more or less torn, of which one is represented in fig. 2 on the transverse section, and several in fig. 3 on a longitudinal section. Figs. 4 and 5, both enlarged, represent a transverse, the second, a longitudinal section of the delicate medullary substance. We have said that the figure was copied from the drawing of Mr. Reeves, after collation made of this drawing with the dried specimens.

The longitudinal and transverse section of the root, fig. 1, is taken from the lower portion of the plant, which arrived dead at the Kew Garden.

J. E. P., *in Flore des Serres.*

THE POTATO—HAS IT DEGENERATED?

Dear Sir—The hackneyed subject of the Potato disease, is just now taking a round through the agricultural press. The discovery now made, is, that Potatoes from seed are free from the disease, and that to raise them from the tubers is an unnatural method of propagation, serving at the best but to continue the individual, which like individuals of the animal kind, must have its periods of youth, maturity, and old age. But unfortunately for the discovery or discoverer, others have tried years ago the same mode, and met with failures in their seedlings, equal to those which befel their tubers. It is equally unfortunate for the deduction that individual varieties wear out through a natural period of duration, that the Potato itself is opposed to this theory, together with many principles of Vegetable Physiology.

Those who wish to trace for themselves the history of the failures to keep seedling potatoes free from the disease, can look through the few back volumes of the "Gardeners' Chronicle," or "Gardeners' and Farmers' Journal." And why should they not fail? It is true that a weakness, or indeed, any peculiarity can be perpetuated by cuttings, and so it can be by seed; and very often by this process such weakness or peculiarity is rendered more fixed and unchangeable. Grafts from old and worn-out fruit trees afford but a weak and degenerate progeny. Seeds from the same trees bring forth a race equally enfeebled. These are well-known facts, and the maxim is universal, that "thrifty grafts make thrifty trees," and

that the "finest fruits produce the finest seedlings." There is, in fact, a close connection between cuttings or buds, and seeds; and very nearly the same powers and capabilities are possessed by each. Seed has the advantage over the former, in its capacity to unite several forms through admixture of pollen into itself, as well as by the possession of a harder coat or exterior shell, by which it can be preserved to a much longer period. Their essential difference is *structural*, not *physiological*, consequently, no physiological differences can arise through either means being preferred for propagation. The Double Flowered Cherry, which has been continued by grafting for generations, is just as healthy and vigorous as the *Triumph of Cumberland*, or any of the newer kinds. The Double White Camellia, one of the oldest of the tribe, is also as vigorous as *A. J. Downing*, or *Jenny Lind*. A bud is so essentially a seed, and a seed a bud, that we frequently see plants producing buds, or young living plants in the place of seeds. The field garlic, the garden lilies, and many grasses are familiar examples. The sweet vernal grass in a damp, moist soil, produces small living plants, frequently in the position and place of flowers and seeds; and the garlic has the same phenomena in a dry one. These viviparous plants are good illustrations of the unity of the essence of seeds and buds; and being so nearly allied, why should one mode of propagation be so superior to the other? There is no good and sufficient reason theoretically, and practically all experience is opposed to it.

As before remarked, double varieties of fruits or flowers continued for years by buds or grafts, show no tendency to decay; and the same may be said of trees and plants raised by suckers, cuttings, offsets or tubers—all modified forms of buds. The Currant and Gooseberry have probably been thus continued for many an age, and the Strawberry and Raspberry, by runners and suckers.

Coming nearer in its structure to the Potato, the Jerusalem Artichoke has been propagated and raised for ages by its tubers, in countries where it is seldom able to produce a flower, much less a seed; and yet it is probably as hardy, healthy and productive at this day as it ever was.

But laying aside all theories of the identity of nature between seeds and buds, and all experience of the duration of other plants continued by other modes than seeds, and returning for the present to the Potato, we find that it in itself affords evidence that it has not degenerated from being raised by tubers, and that there is no reason why it should not still go on in the same way it has done for an infinite number of years. My position is, that the Potato disease of 1846 no longer exists; and that the Potato has been

for the last few years getting as strong and as vigorous as it was before that period. The Potato disease of 1846 when it attacked a crop, made a whole field of their haulms or "vines" black and rotten, in three days from the period of attack, and the Potato tubers wholly rotten in a week from that date. The next season the "vines" were weaker, and the potatoes smaller, and some of them rotted in the ground; but nothing like what they did the year previous. The year succeeding this, the vines were scarcely affected anywhere, and the "rot" in the tubers was confined to a few localities. So it has continued improving, till at the present time the "vines" are as strong, the potatoes on the average as large, and where care is bestowed on their culture, the crops are as heavy as in any other period of the plant's history. Still we have the same kinds in general culture as we had previously to 1846, and continued by the same mode of propagation. The fact is, the Potato has been subject to numerous diseases ever since its introduction to cultivation. These have one after another disappeared, succeeded by new forms.

Five and twenty years ago, the "curl" was the great disease of the day. As soon as the shoot was fairly above ground, it became curled and bushy, and was familiarly called "nose headed." When it had reached this state, there was an end of the crop for that season. Strange enough, the theory of the degeneracy of varieties was then started to account for it; and old Marshall (not our *Humphrey* Marshall) advocated this view of the Potato disease, or "curl," with great energy. But the same mode of propagation was generally continued notwithstanding; and yet in time the "curl" went its way as the first great epidemic has done.

Well, what are the causes of the Potato diseases, many and numerous? Atmospheric influences are continually affecting injuriously both plants and animals—exotics readily, but indigenous objects less easily. Some few years ago the *Gaillardia* was carried off entirely through France. In 1842, according to "Flora Cestrica," the common St. Johnswort disappeared throughout the whole of Pennsylvania. For several years past, the American White Ash has had its leaves blistered and apparently scorched off, regularly the second or third week in June, for miles around Philadelphia; and the American Buttonwood, not only its leaves, but young shoots also.

Foreign Grapes and Gooseberries so readily mildew, that they are proverbial on that account; and many other cultivated plants are as well known liable to many disorders. The Potato is no exception. Like all other plants its structure is adapted to certain atmospheric conditions, in the

absence of which its processes are unhealthy. If a plant be adapted to a warm and dry climate, an atmosphere that is cold and damp will affect it injuriously, and, on the other hand, one adapted to a cold, moist country, is but indifferently situated in one of opposite conditions. Hence, a plant not in the exact conditions of growth which its constitution requires, is always more or less liable to diseases and disorders; but while these from their varied nature, can probably never be exactly pointed out, we can so far guard against them, by conducting our operations with as much regard to the peculiar constitutions of the individual plants as possible. So long as a variety or form of vegetable remains under the exact circumstances under which it originated, it will remain the same, let its mode of propagation be what it will; when these change, mutability and disease follow; and these altered circumstances being so ill understood, has led to the belief in an innate degeneracy or fixed period to the duration of varieties.

I have always felt an interest in this subject, and as you were kind enough to insert a communication from me before, I offer a few further notes, though I fear they are too hastily thrown together to be as easily understood as I could wish.

JULIUS.

ON A NEW VARIETY OF CULTIVATED FLAX.

Linum usitatissum var. regale, Scheidw.

BY M. M. SCHEIDWEILER;

With some Remarks on the distinction of the two species, from which are derived the usual varieties of Flax,

BY J. E. PLANCHON.

The perfection of plants which are useful to man, is an object which should interest every one who looks with pleasure on the prosperity of his country.

Since a long time, there have been obtained from most of our cultivated plants, by the help of different processes, numerous varieties, deviating more or less from their original by their superior qualities. Fruit trees, cabbage, lettuce, peas, beans, &c., are evidences of it. Flax and some other

plants, and especially rye, are exceptions to this rule. Of this last but three or four varieties are known, and they are liable to degenerate; and as to flax, besides the two species described below, but one variety is known, that with white flowers, a character which has no importance in the use which is made of the plant. Our curiosity was much excited therefore, when shown, about twelve years ago, a small quantity of seed, under the name of *royal flax*. This seed presented nothing in particular, unless that it was smaller and paler in color than the ordinary flax.

Spring having arrived, I hastened to sow this seed in clayey soil rather strong. The young plants offered nothing remarkable; but, at the end of some weeks, their growth manifested an uncommon vigor, and the stalks rose by degrees to the height of four feet four inches. The strength of the stalks was in proportion to their height.

As I wished to gather from this flax as many seeds as possible, the plants were thinned out with care, in order to give them sufficient space to spread; for the same reason, the seeds were not gathered until entirely ripe. Not having an opportunity to sow these seeds, we have preserved what we had left until this year, when we had them sown in a part of the garden of the horticultural establishment at Gendbrugge, in a turfy soil, mixed with a portion of clay. These plants have vegetated in this soil with great vigor, nearly all of them having attained a height of four feet four inches. This will then be a great acquisition to our growers, if the fibre of this variety should prove to be superior, or even equal in quality, to that of the ordinary flax. A flax, whose stalk grows a half foot longer, will give an immense advantage to our cultivators. We conclude this article with some observations on the preservation of the seed of the flax. Those which we sowed this year were ten years old. They retained their germinative faculty in all this time, because we took care to keep them in a dry and warm place. They might also be dried in a furnace or a stove, the temperature of which should not be above 50°. Seeds thus dried, and preserved in a dry place, on a bread oven for instance, give always the most vigorous plants.

SCHEIDW.

To the preceding details, the value of which agriculturists will appreciate, I will add some words on the specific distinction of the two plants, confounded under the usual name *Linum usitatissimum*. This will be an abridgment of observations, published in my *Monographic Review of the*

Flaxes, in *Hooker's Journal of Botany*, vol. vii. 1848, an article which I can only quote from memory, not having it at present before me.

The most remarkable difference between the two types of the common flax is in the capsules; in one, these organs do not open themselves with elasticity, whence the common names *Schliesslein* (closed flax), or *Dreschlein* (beaten flax), which the German cultivators give them; the other, on the contrary, is crackling, that is, opening with noise by a spring for the dissemination of the seed, they receive, in the vernacular tongue of the Germans, the names *Springlein* (leaping flax) and *Klinglein* (cracking flax). Distinguished in the first place as different species by the celebrated Miller, these types were called by the English author, the first, *Linum usitatissimum*, the second, *Linum humile*, names for which I wish I could substitute, as juster and less subject to confusion, those of *Linum vulgare* and *crepitans*, which these plants received later from Schubler and De Martius. Unfortunately the characters on which the authors mentioned founded the distinctions of these plants, are in the habit, the comparative shape, the thickness of the capsules, and their mode of dehiscence, the size of the flowers, in fact, on points generally so variable in cultivated species, that we cannot, without dispute, admit as certain signs of specific difference. A distinction remarkable for its constancy, and which, easy to establish even with unripe capsules, will permit us always to distinguish these two types, is that which I have discovered in the five half partitions which divide each cell of the capsules. In the *Linum usitatissimum*, these partitions are always *glabrous on their free side*, while, in the *Linum humile*, this same side is *covered with long crisped hairs*. It is on the consideration of this character, that it seems to me the *certain diagnosis* of these two plants should be founded, especially in the absence of capsules, whose mode of dehiscence offers to practical men a mode of distinction much less exact and perhaps as true.

The *Linum usitatissimum* of Miller (*Linum vulgare*, SCHUBL. & MART.), is the species most commonly cultivated; it is the only one which I have seen in Flanders. In general, it is a little higher than the other species, which it resembles in the leaves, the inflorescence, and the fruit. The flowers, however, are generally smaller.

The *Linum humile*, MILLER (*Linum crepitans* SCHUBL. & MART.), is not rare, as Prof. Scheidweiler, in the culture of the Rhenish provinces; it suckers more than the *L. vulgare;* its flowers are larger. The same species exist in some gardens as an ornamental plant, under the erroneous name of

L. grandiflorum, which is that of a flax with red flowers, a native of Algiers, and perfectly distinct from the cultivated species.

These two common plants, whose diagnostic characters I have just sketched, have been observed in the farms of the department of the Upper Garonne, by Mr. Dunal, who has had both figured in the admirable collection of drawings of the Faculty of Sciences at Montpellier.

J. E. P.

Translated from the Flore des Serres.

For the Florist.

MR. EDITOR.—The article in the *Florist*, (Vol. 3, No. 5,) by L. C. TREVIRANUS,* on the question, whether our cultivated *Wheat* originated from a certain grass, indigenous on the coasts of the Mediterranean, and known to botanists by the name of *Ægilops ovata*, is highly interesting; and has revived in me a strong desire (heretofore expressed in another Journal,) to see and examine *specimens* of the plant, which, it is alleged M. FABRE has succeeded in changing into wheat, by twelve years of careful cultivation. Although I confess myself rather incredulous on that point, I am still open to conviction; while the seeming countenance given to the statement by so eminent a botanist as M. DUNAL, is well calculated to make one wish to know more about the matter, and to inspect the evidences of so remarkable a transformation. Could you not devise measures to procure some specimens of this *new wheat*, in the several stages of its progress from *Ægilops* to Triticum, so that we might have a chance in this country, to see and judge for our ourselves? I presume M. FABRE would cheerfully furnish samples of the intermediate forms, between the perfect wheat and its wild original, (both of these last mentioned also, would be truly acceptable); and if you could obtain a supply by means of your correspondents in France, or otherwise, you would much gratify some of your readers, and might moreover be expanding our views of the economy of vegetation.

Considering the well-known influence of culture, soil and climate, in modifying the size, texture, color, flavor and other subordinate characteristics of vegetable organs and products, I can readily apprehend that a great change may be effected by such agencies, in all those features and qualities alluded to, even among the Grasses; but I am not quite prepared to expect under any management, or circumstances, a transmutation of the essential

* Taken from the Gardeners' Chronicle.

characters on which genera and species are founded. *Ægilops* is undoubtedly allied to the genus *Triticum;* but it stands still nearer to *Hordeum* in the natural arrangement; yet I have never heard of its taking on the form of Barley, though I have read of barley itself being converted into *Lolium* or Ray Grass, and am quite familar with the old story of Wheat changing into *Bromus* or Cheat. Let us then endeavor to obtain the means of settling this curious question about the conversion of *Ægilops*, and see whether or not it belongs to the same category as the *traditional* transformation of *Triticum* to *Bromus*, *Linum* to *Camelina*, and other relics of ancient credulity.

While on this subject I may remark, that M. FABRE'S statement, if confirmed, will have an interesting bearing on the famous "*Strawberry question*," which has raised such a commotion in the camp of American gardeners. It appears that the result of M. FABRE'S experiment with *Ægilops* was, "that the plant acquired longer ears, whose rachis was not brittle as before, when ripe, and in which, step by step, fewer blossoms were abortive; the glumes meanwhile, were less broad and flatter, &c." He does not say, which is to be regretted, whether the *glumes* remained *collateral, in front*, or became *sub-opposite;* but several of the changes which he does mention, are just such as culture, soil, &c., are known to produce, without subverting the generic character. The gradual conversion of sterile florets into fertile ones, or, as he expresses it, the result of his experiment, "in which, *step by step fewer blossoms were abortive*," presents a striking analogy, and seems remarkably *a propos* to Mr. Meehan's idea respecting the influence of culture, &c., rendering *fewer strawberry stamens abortive*. If a judicious culture of twelve years can render the sterile florets of *Ægilops* fertile, it will suggest a highly interesting problem in reference to other plants. It may, for instance, become a curious exercise for young gardeners, in the Horticultural arithmetic of the future, to cipher out the *Strawberry* question; as thus—if twelve years of culture will change abortive florets of *Ægilops* into fertile ones, how long will it take to convert abortive stamens of *Fragraria* into perfect ones? It will moreover, be a very pleasant circumstance, if M. FABRE'S experiments shall excite us all to a closer and more careful investigation of facts, and thus lead to a better understanding of the laws and phenomena of the vegetable economy. In that event, we may hope that as the students of Nature advance, step by step in the pathway of knowledge, their disputes like the abortive florets of the *Ægilops*, will become fewer and fewer, and the researches of all parties result in entire harmony and satisfaction.

Trusting implicitly to your disposition to aid in promoting this laudable object, by procuring, if practicable, the desired *specimens* from M. FABRE, I am, very respectfully, your most obedient,

W. D.

West Chester, Pa., July 17, 1854.

BOTANICAL GLOSSARY.

TERMS APPLIED TO THE ELEMENTARY PARTS AND ORGANS OF PLANTS.

Aculei. Prickles, as the spines of Cacti.

Air cell. A sort of cavity, or opening, existing in the interior of plants, among the tissues of which they are composed; they communicate with the stomates, or breathing pores of plants.

Arborescent. Having a tendency to become a tree.

Arbuscula. Intermediate in size between a shrub and a tree.

Arbustum. Having perennial branches, but without any supporting trunk.

Barbs. Forked hairs occurring on some plants.

Bract. A small leaf situated on the peduncle, from the axil of which proceeds a flower; or those leaves situated betwen the true leaves and calyx. In some plants they are colored, and showy as the Poinsettia.

Cambium. Elaborated sap; a layer of mucous viscid matter between the bark and the wood, which is converted into woody fibre for the further development of the plant.

Caudex. The trunk of a tree—divided into the caudex ascendens answering to the stem, and caudex descendens answering to the root.

Caulescent. Acquiring a stem.

Cellular tissue. Soft, pulpy mass composing the succulent parts of plants, made up of cells or cavities.

Ciliæ. A fringe of hairs.

Cryptogamous. A term applied to plants that have stamens and pistils concealed, as mosses, ferns, &c.

Epidermis. Cuticle or outer skin.

Epiphytes. Plants that grow upon other plants, without drawing any nutriment from them.

Frutescent. Of a shrub-like nature or habit.

Frutex. A shrub with perennial branches, but no main stem.

Glands. Portions of firm cellular tissue situated on the leaves and stems of plants, for the purposes of exhalation and secretion.

Membrane. Thin substance which forms the walls and sides of the cellular tissue.

Nectary. The part of a flower that secretes honey.

Parasite. Applied to plants that grow upon other plants and abstract nourishment from them, as the dodder.

Phænogamous. Applied to plants which bear visible flowers.

Ramenta. Scales sometimes found on young shoots.

Stipules. Small leaf-like appendages, situated at the base of the true leaves of many plants.

Stomates. Minute passages through the skin.

Tendrils. Thread-like appendages by which some climbing plants support themselves twining around objects.

Thorns. Indurated abortive buds, with sharp points, connected with the woody tissue.

Tissue. Substances of which plants are composed. There are distinct kinds, cellular, vascular, and woody tissue.

Vascular tissue, Are simple membranous tubes which are the vessels of plants.

Veruccæ. Warts or sessile glands produced on the surface of some plants, giving it a peculiar kind of roughness, which condition is called scabrous.

Woody tissue (*lignin*). The solid parts of plants, consisting of membranous tubes lying in bundles, more or less compactly. It is the part which gives durability and stiffness to the vegetable fabric.

TERMS PRINCIPALLY APPLIED TO THE ROOTS OF PLANTS.

Bulbous. A term often erroneously applied. A bulb is a bud of a peculiar kind, the fibres that issue from the under side of bulbs are the true roots; bulbs sometimes grow on stems.

Fibres. The small thread-like parts or minute subdivisions of the roots. The term *fibrous* is applied to roots when divided into a number of these thread-like filaments, or fibres; as examples, the Kalmia, Rhododendron, and Azalea are familiar.

Fusiform. Spindle-shaped, thick at top, and tapering downward as in the carrot.

Fasciculated. Applied to tubercular roots when they grow in clusters.

Globose. Applied to roots that become dilated immediately below the base of the stem, as in the turnip.

Granulose. Having small fleshy grains or particles intermixed with the fibres, or divided into little knobs or knots.

Nodulose. Applied to fibrous roots having occasional dilitations, similar to the preceding.

Præmorse. Applied to roots having an abrupt termination as if broken across.

Radicle. The root of an embryo or seed.

Ramose. Branching; applied when the root is divided into a number of branches or fibres.

Rhizina. Applied to the young roots of mosses and lichens.

Spongiole. Extreme points or apex of the fibres, by whose absorbing agency the plant abstracts from the soil and air.

Tubercules. Fleshy roots composed of distinct lobes, accompanying the fibrils of some plants, as in the roots of the Orchis.

Tuberous. This term is frequently applied to what is called a root; but the tuber is a kind of stem. The potato is a tuber.

Tap-rooted. Spindle-shaped, or fusiform rooted.

TERMS APPLIED TO THE PARTS OF THE STEM.

Acaulis. Stemless. Strictly speaking, all plants have a stem more or less developed; but in some, as in the common gentianella, it is very short; and such plants are said to be stemless.

Adventitious. Applied to buds which appear accidentally, or out of place; that is, in a position where buds are not usually produced in the particular kind of plant.

Adnascens. Applied to small bulbs developed in axils of the scales which form the original bulb, sometimes called *cloves.*

Aiguillons. Stalked glands formed on the rose and other plants, in the form of rigid hairs.

Alburnum. Latest formed layer of wood, situated immediately beneath the back.

Articulated. Jointed; falling in pieces, or separating readily at certain points; which are called joints or articulations, as the stems of grasses.

Axil. Angle between a leaf and stem on the upper side, or the point between two diverging branches.

Bark. The external covering which envelopes the stem, separable from the wood.

Brachiate. When opposite branches diverge at right angles from the stem, crossing each other alternately, they are said to be brachiate; four ranked, spreading in four directions.

Branches. Primary ramifications of the stem.

Branchlets. Subdivisions and small ramifications of branches.

Brindilles. Same as the preceding.

Bulbili. Small bulbs borne on the stems of some plants, as Lilies.

Bulbs. Distinguished by Linnæus, as leaf buds of the roots; they contain the embryo of a stem, surrounded by imbricated scales, the outer of which are membranous, and cohere into a covering, as in the onion; or consist of distinct and separate pieces, as in the lily.

Calumus. A term applied to fistulous, simple stems, without articulation, such as those of rushes.

Cambium. Elaborated sap; a mucous viscid secretion found between the bark and the wood.

Caudex. Principal stem; applied to the trunk of trees.

Cauliculi. Small stems produced from buds at the neck of a plant, without the production of leaves.

Climbing stem. A stem which elevates itself by clinging to surrounding bodies, by means of roots or tendrils which it produces.

Coarcture, Collet, Collum. The line of division between root and stem; the collar or neck.

Coma. Assemblage of branches forming the head of a tree.

Corms. Solid, fleshy, depressed, subterranean stems.

Corticate. Harder externally than internally; like bark.

Creeping stem. Slender under-ground stem, which spreads horizontally, emitting roots and plants at intervals.

Culm. Stem of grasses and similar plants.

Decorticate, Excoriate. To divest of bark or skin.

Dichotomous. Divided in pairs; forked with two prongs.

Dumose. Low, and much branched.

Duramen. The heart wood of trees, which becomes harder and deeper colored than the rest of the wood.

Endogenous. Growing by additions to the interior. Endogenous stems have neither the pithy bark, or medullary rays, nor wood distinguishable; but all are irregularly arranged. Monocotyledonous plants produce endogenous stems; the stems of palms afford an illustration.

Epidermis. Exterior coating of cellular substance, cuticle or outer skin.

Enodis. Applied to stems which are altogether without joints.

Exogenous. Growing by additions to the exterior. An exogenous stem consists of bark, pith, and medullary rays, all more or less obvious and distinguishable. All our timber trees are of this mode of growth. Dicotyledonous plants.

Geniculum. Applied to the joints or nodes of the stem.

Hami. Hairs curved back at the points, so as to form hooks.

Hybernaculum. The shell of a bud, formed by the young leaves, like scales, overlying one another.

Internode. Space between the joints. The node is the point of the stem where the leaves appear; the internode is the space between them. *Merithallus.*

Liber. The innermost layer of bark or interior lining of woody tissue; it is often used as that of the lace bark tree; and garden mats are made from the liber of the linden.

Ligneous. Partaking of wood; woodlike.

Medulla. Pith of vegetables; centre or heart.

Medullary rays. Lines radiating through the wood from the centre to the circumference.

Peridroma. A term applied to the stipes of ferns.

Pilulifera. Bearing little balls or globe-shaped bodies.

Propaculum. A term applied to an offset.

Runner. A prostrate filiform stem, forming roots, and a young plant at the extremity, as in the strawberry.

Sarmentose. Producing runners.

Sarmentum. A runner.

Scandent, Scandens. Having a climbing habit.

Scion. A young shoot of a ligneous plant.

Scoberia. A term applied to the rachis in the spikelets of grasses, which has a toothed flexuose appearance.

Sobole. Slender, creeping stem, growing below the surface.

Spines. Thorns; indurated and pointed projections from the branches.

Stipes. The stem of a fungus or fern.

Sucker. A shoot from the root from which the plant may be propagated.

Suffruticose. Sub-shrubby; having branches of a woody texture, which perish annually.

Tegmenta. The scales of the bud.

Tunicate. Coated with layers, as the onion.

Turion. A stem partly developed; covered with scales, as the young stem of asparagus.

Vimineus. Slender, flexible.

Virgate. Slender, but less flexible than the preceding.

Viticulose. Producing vines or trailing stems.

Viviparous. Increasing by buds falling from the stem.

Volubilis. Twining; having the property of twisting around another body.

W. S.

NEW BOURBON ROSE.

At the weekly meetings of the Horticultural Association at Washington, Professor Charles G. Page has exhibited a new Bourbon Rose of his own production. It is from one of four seeds, and of the progeny of the common Chinese daily upon the *Pourpre de Tyre.* Florists, Fanciers and Critics pronounce warmly in its favor as a first rate rose.

The color is a fine crimson, form perfect, very double, size large, habit strong and healthy, bloom perpetual and abundant, and deliciously fragrant, a quality generally wanting in the best Bourbon Roses. It has been tested for only one year, out of doors and in, the bush being but two years old from the seed; but its only change is for the better.

FOREIGN PATRONAGE, No. 2.

Under the head of Foreign Patronage, a correspondent has exposed the prejudiced ignorance of a critique of Dr. Leidy's Fanna and Flora within living animals, in the Gardeners' Chronicle. It is very much in the style of a certain class of Englishmen when speaking of anything American.

We have another cause of complaint against the Gardeners' Chronicle; which is this; in a late issue under the head of Floriculture, is copied almost entire, an article from this Magazine by Mr. Wm. Chorlton, on the Pink (p. 243), without credit, merely signed with the initials W. C. Now we object decidedly to such theft, and it is done with bad grace by persons who are continually harping upon the reprinting of articles in our literary magazines.

The Gardeners' Chronicle is a most valuable paper, and the articles we copy from its pages, are the most valuable we present to our readers: but we have never yet refused credit to the proper source.

The 25th, 26th and 27th days of October next, have been fixed upon by the United States Agricultural Society, for holding its Cattle Convention, in the city of Springfield, Clark Co., Ohio.

Six thousand dollars will be distributed in premiums for the best stock of the various breeds of cattle, subject to competition without territorial limit.

TRANSPLANTING.

For briefness sake I will confine myself to the transplanting of ligneous plants only. The first consideration of importance is to examine the soil upon which the tree, shrub, or vine is growing, and also that in which it is to be planted, as a great variation in this respect is frequently the only cause of failure.

Plants grown in sandy soils have generally long, naked roots, shallow in the soil, which causes them to suffer much from the first summer's drought after being transplanted, and although they generally succeed after being planted in light soils, many failures occur when they are planted in heavy loamy lands; they are, however, earlier matured in the fall, larger for their age, and cheaper for their size, than those raised in loamy lands; on the other hand, these latter are heavier, contain more sap and woody fibre, are more branchy, their roots are more numerous and more fibrous, and run deeper into the earth than those grown in sandy soil, and are attended with more success in transplanting, as they suffer less in the first year on account of the fibres and depth of their roots; failures rarely occur with them when planted in any soil except sharp sand, that is, when the soil is properly prepared, and the trees properly planted. But when trees are raised on cultivated ground, and transplanted to lawns, failures will often happen, as the grass reflects the heat, and throws it up around the tree, and scalds it. This cannot always be prevented; the best thing to do in this case is to stir the soil frequently around the stem with a hoe. Where plants have been raised on stony lands, I have witnessed good results from mixing stones with the soil about their roots.

Plants raised in the nurseries generally succeed, unless there is a very great difference between the soils; the very cause of success in this case is, because they have been once or twice transplanted. Transplanting trees

from the woods is a very different affair. I have had less success with tulip and hickory trees than with any others, because they depend so much on their tap roots. In transplanting large trees their roots should be kept as entire as possible, by following them carefully out for a great distance from the stems.

I consider moist weather in midwinter the best time for transplanting all kinds of large trees, both evergreen and deciduous. It is well to drive stakes in the ground a short distance from the roots, and to fasten the trunks by wires, as a support in windy weather; the wires should be fastened to a small hoop placed around the trunk. I have witnessed very few failures by this practice, but have seen many by the "frozen ball" system. Of all the follies in transplanting trees this appears to me the greatest. I have practised it to a great extent, much against my will, but always condemned it in my mind. I do not say that trees will not grow by this system, for I have been very successful, but they could never be compared to those planted with entire roots. All deciduous trees should have their branches shortened when transplanted, and all large ones should have them thinned out, and two-thirds of the previous season's growth of those which are left should be cut in; this will retard vegetation, and prevent too great a draught of sap from the roots, before they have had time to form new fibres. The branches will make lateral shoots, which will shade the stem, which is very essential the first year. Evergreen trees are seldom ever pruned when transplanted; indeed, I have never seen any necessity for it, but evergreen shrubs had better be clipped around with hedge shears.

The next consideration is to have the plants properly matured before removal; vines, shrubbery, and young trees in nurseries, are almost immediately matured after the fall of the leaf. All kinds of woody plants are safely transplanted from the first of November to the middle of April, and sometimes earlier and later. Some years ago, I got three maple trees on the third of May, and planted them on the sidewalk of a house in the upper part of this city, where they are still growing; another year I got a great number of deciduous trees of large size in the middle of October, and planted them at Tacony, where they now flourish. I mention these circumstances to show what can be done, but would not advise the practice.

Evergreens may be transplanted from the middle of September to the middle of May. I prefer fall planting for all hardy plants where the land is sloping, but where it is springy or retentive of moisture, or is apt to be inundated in winter or spring, then I would prefer spring planting. The digging of large holes, spreading out their roots in their natural positions,

&c., have been so often repeated, that a recapitulation of such directions is not needed here.

Transplanting should not be performed during hard frosts, as the air is injurious to the fibres. It is good to mix very well rotted manure, or small charcoal, with the soil to put about the roots. It is a good plan to put long manure or straw over the surface, around trees planted in the fall, but it should be removed by the first of April at latest, and the soil forked up so that the genial warmth of the sun and air may heat the soil, and excite the roots to make new fibres, before the leaves begin to make too great a draught upon them. Some persons think that if a plant has moisture at its roots it must thrive, never considering that it requires a combination of heat and moisture to grow plants. I could say more on this subject, and also on continual watering of plants in hot weather, but I fear I have already transgressed too far on your pages, and on the patience of your readers.

WALTER ELDER.

PROPAGATION OF TREES BY CUTTINGS IN SUMMER.

BY A PRACTITIONER.

When a cutting of any deciduous tree is planted in autumn, winter, or spring, it contains within it a portion of the true, as it has been called, or vital sap of the tree of which it once formed a part. This fluid, relatively to plants, is very closely analagous to the arterial blood in animals; and I shall, therefore, to distinguish it from the watery fluid which rises abundantly through the alburnum, call it the arterial sap of the tree. Cuttings of some species of trees very freely emit roots and leaves, whilst others usually produce a few leaves only, and then die, and others scarcely exhibit any signs of life; but no cutting ever possesses the power of regenerating and adding to itself vitally a single particle of matter, till it has acquired mature and efficient foliage. A part of the arterial sap previously in the cutting assumes an organic solid form, and the cutting, in consequence, necessarily becomes, to some extent, exhausted.

Summer cuttings possess the advantage of having mature and efficient foliage; but such foliage is easily injured or destroyed, and if it be not carefully and skilfully managed, it dies. These cuttings, such as I have usually seen employed, have some mature and efficient foliage, and other

foliage which is young and growing, and, consequently, two distinct processes are going on at the same time within them, which operate in opposition to each other. By the mature leaves, carbon, under the influence of light, is taken up from the surrounding atmosphere, and arterial sap is generated. The young and immature leaves, on the contrary, vitiate the air in which they grow by throwing off carbon; and they expend, in adding to their own bulk, that which ought to be expended in the creation of shoots. This circumstance respecting the different operations of immature and mature leaves upon the surrounding air, presented itself to the early laborers in pneumatic chemistry. Dr. Priestley noticed the discharge of oxygen gas, or dephlogisticated air (as it was then called), from mature leaves. Scheele, making, as he supposed, a similar experiment upon the young leaves of germinating beans, found these to vitiate air in which they grew. These results were then supposed to be widely at variance with each other, but subsequent experience has proved both philosophers to have been equally correct.

I possess many seedling young trees of the Ulmus campestris, or suberosa, or glabra; for the widely varying characters of my seedling trees satisfy me, that these three supposed species are varieties only of a single species. One of these seedling plants presented a form of growth which induced me to wish to propagate from it. It shows a strong disposition to aspire to a very great height, with a single straight stem, and with only very small lateral branches, and to be, therefore, calculated to afford sound timber of great length and bulk, which is peculiarly valuable, and difficult to be obtained, for the keels of large ships; and the original tree is growing with great rapidity in a poor soil and cold climate.

The stem of this tree, near the ground, presented, in July, many very slender shoots, about three inches long. These were then pulled off and reduced to about an inch in length, with a single mature leaf upon the upper end of each, and the cuttings were then planted deeply in the soil. The cuttings were then covered with bell glasses in pots, and put upon the flue of a hot-house, and subjected to a temperature of about 80 degrees. Water was very abundantly given, but the under surfaces of the leaves were not wetted. These were in the slightest degree faded, though they were fully exposed to the sun; and roots were emitted in about fifteen days. I subjected a few cuttings taken from the bearing branches of a mulberry tree to the same mode of management, and with the same result; and I think it extremely probable, that the different varieties of Camellia, and trees of

almost every species, exclusive of the Fir tribe, might be propagated with perfect success and facility by the same means.

Evergreen trees, of some species, possess the power of ripening their fruit during winter. The common Ivy and the Loquat are well-known examples of this; and this circumstance, combined with many others, led me to infer that the leaves of such trees possess in a second year the same, or at least, nearly the same power as they possessed in the first. I therefore planted about a month ago some cuttings of the old double-blossomed white and Warrahtah Camellia, having reduced the wood to little more than half an inch in length, and cut it off obliquely, so as to present a long surface of it; and I reduced it further by paring it very thin and near to its lower extremities. The leaves continue to look perfectly fresh, and the buds in more than one instance have produced shoots of more than an inch in length, and apparently possessing perfect health and much vigor. Water has been very abundantly given; because I conceived that the flow of the arterial sap from the leaf would be so great, comparatively with the quantity of the bark and alburnum of the cuttings, as to preclude the possibility of the rotting of these.

The cuttings above described, presented in the organization a considerable resemblance to seedling trees of different periods of the growth of the latter. The bud very closely resembles the plumule, and the leaf, the cotyledon, extended into a seed leaf; and the organ which has been, and is called a radicle, is certainly a caudex, and not a root. It is capable of being made to extend in some cases, to more than two hundred times its first length, between two articulations, a power which is not possessed in any degree by the roots of trees. Whether the caudex of the cuttings of Camellias above mentioned have emitted, or will, or will not, emit roots, I am not yet prepared to decide, but I entertain very confident hopes of success.—*Flor. Cab.*

The Rev. Charles Fox, of Grosse Isle, near Detroit, Michigan, died of cholera on the 24th inst. He was English by birth, had for many years officiated worthily and acceptably as an Episcopal clergyman, but bought an islet in Detroit River and turned farmer some four years ago, and has since devoted himself to agriculture and its improvement with enthusiasm and success. He established *The Farmer's Companion* some eighteen months ago, and last winter published "The American Text-Book of Agriculture," which has been received with marked favor.

Our readers will observe that the report of the Fruit Committee, which was referred back to them, is now published. It went by default, on account of the destruction of the plant which was submitted to their examination. It now becomes the duty of the Committee on Botany of the Pennsylvania Horticultural Society to present their report, under Mr. Hanson's motion, on the subject of the change in the sexual organs of the Strawberry, so that we may have the real opinion of the Society given to the public. The real question, as to the possibility and reasonableness of the change from a form apparently pistillate or staminate, to the natural one of a perfect flower, depends so little on a knowledge of Hovey's or any other seedling, that any one having a moderate knowledge of botany will disregard altogether the identity of any plant in which a change may take place. The fact of a change having taken place in one variety is sufficient proof of the possibility of its happening in any variety of a plant, the natural condition of which is to have perfect flowers. That the advocates of the Cincinnati theory will be influenced by the report of the Committee on Botany is not expected, even though it may have for its head one justly entitled by age and *experience* (so highly claimed in their own case) to confidence; but we have seen that experience in their view of the case means their own very narrow observation, which can hardly be dignified with the name of observation, as, we have no doubt, if they saw anything which may have controverted their ideas, it was regarded as a mistake, made by the plant, *not by themselves*, and so they passed it over. We must patiently wait for the march of intellect, or until a few persons who control the American Horticultural world have lost their influence; for we venture to predict that in ten years or less the advocates of this theory will be regarded as among the most unmitigated old fogies of the present time.

NOTICES OF NEW OR RARE PLANTS.

Cissus discolor.—This beautifully variegated climber, shown by Mr. J. F. Knorr, at the Annual Exhibition of the Pennsylvania Horticultural Society in September last, continues to be the best novelty of its class yet introduced. The velvety softness of the colors developed in its growth, cannot be surpassed. It is beginning to be widely distributed, being a plant of rapid growth and easy propagation. The figure in the fourth number of

the Florist really falls short, beautiful as it is, of the real excellence of the plant. It is for sale by several of our Philadelphia nurserymen.

Coleus Blumei.—Another variegated plant, figured in the January number of this year. It has not yet bloomed here, to our knowledge, but the foliage is in itself very attractive. The purple marking which occupies the central portion of the leaves sparkles in the sunlight like what the ladies and dry goods people call a changeable silk.

Begonia xanthina.—This is decidedly the most beautiful species of this very variable genus yet introduced. The foliage is large, pubescent and deep green above, reddish purple underneath. The flowers on long peduncules are of a beautiful golden yellow. We see a notice of a variety raised from this with marbled leaves, which must be an improvement.

Dipladenia crassinoda.—This beautiful plant, which, although for some time introduced to this country, is not often seen in collections. A plant of it in bloom at Mr. Knorr's shows a fine bloom of its peach-colored blossoms, blotched with a deeper shade, and with a yellow throat.

Roudelelia speciosa.—A cinchonaceous shrub, a native of Cuba, with handsome Lantana-like terminal umbels of scarlet flowers, with yellow eye and throat. A well-grown specimen in bloom would be a very handsome plant.

Siphocampylos coccineus.—A species with handsome foliage, and long, upright scarlet flowers. Rather showy, but not so much so as several other species in cultivation.

Eriocnema aenea.—A handsome melastomaceous plant, with woolly leaves, coppery above, bright red underneath, with umbels of inconspicuous flowers. This promises to be an addition to the stock of plants with showy foliage.

The Potato question seems likely to assume a new form. Raising from seed has failed to preserve the plant from disease, and so has the importation of sets from Peru, as well as a selection of varieties. No one can say that a cure has been found among the many nostrums which have had their admirers; artificial manures, pickles, and steeps are exploded; even peculiar modes of preparing the tubers have been more or less unsuccessful, and such improvement as has taken place in the health of the plant is either due to better cultivation or to a gradual wearing out of the affection. We now find, in the "Revue Horticole," an account of another kind of *Solanum*,

called *verrucosum*, which may possibly be destined to perform an important part in the regeneration of the Potato.

It has long been known that in the west of Mexico there exist certain Potato-like plants, producing tubers, and approaching very near to the cultivated species. Some account of them was given in 1848 in the third volume of the Journal of the Horticultural Society. Among the species there mentioned, allusion was made to a *Solanum verrucosum*, which produced very small tubers, not exceeding 1½ inches in length, and which was regarded as of no value in cultivation, although, even in the bad year 1847, it exhibited no trace of disease. It appears, however, as if, in the hands of the French, it were destined to acquire some importance.

A Monsieur Pargues states that, at Vesoul, in the Haute-Saône, he received, in May, 1853, from the Horticultural Society of Ain, a dozen tubers of this sort, about the size of walnuts. They were perfectly sound, the skin was a clear rose color, modified by a slight yellowness appearing through it. In quality they were mild and pleasant, and as good as the very best varieties of the common Potato. They were the result of three years' culture in the neighborhood of Ain, where they had been grown in good, rich, well-worked land, without any material increase in size.

It, however, proved far otherwise with M. Pargues. He states that his tubers were planted early in May in common garden soil, which was cleaned twice during the season. On the 6th of September he took up the produce of ten of these tubers, and found they had each yielded from twenty-three to twenty-five ounces; some of the new Potatoes weighed as much as six ounces; but others were not larger than walnuts. It thus appeared that while in the rich well-worked soil of Ain the Potatoes were too small to be of any use, in the common garden ground at Vesoul they acquired a fair size, and justified the expectation that by raising this Potato from seeds the size would be gradually increased. What renders this a very important consideration is, that the plants of *Solanum verrucosum* were quite free from disease, although common Potatoes planted by their side were attacked as early as the end of July; and we have the evidence of Prof. Decaisne, that in the Garden of Plants, at Paris, the same power of resisting disease was remarked.

Under these circumstances it seems desirable to procure sets of the *Solanum verrucosum*, which could be easily done by any of the English correspondents of Messrs. Vilvorin, of Paris. Attempts might then be made to improve the new kind, either directly by sowing its seeds, or indirectly by crossing it with such sorts as the Fluke. Should this be practicable, it is

to be anticipated that we may at once come into possession of a good large Potato with a perfectly sound constitution—a result which we need not say would be cheaply purchased with any amount of trouble or expense.—*Gardeners' Chronicle.*

PENNSYLVANIA HORTICULTURAL SOCIETY.

June 20, 1854.—The stated meeting was held as usual this evening: the President in the chair.

The premiums were awarded as follows:

Gloxinias—ten plants, for the best, to Thomas Robertson, gardener to B. A. Fahnestock; for the second best, to Alexander Burnett, gardener to H. Pratt McKean. *Fuchsias*—eight plants, for the best, to Thomas Robertson; for the second best, to Alexander Burnett; for the third best, to John Pollock, gardener to James Dundas. *Collection of twelve plants*—for the best, to Robert Buist; for the second best, to Thomas Robertson; for the third best, to John Pollock. *Specimen plant*—for the best, to Robert Buist; for the second best, to John Pollock. *New plants shown for the first time*—a premium of three dollars to Robert Buist, for *Orchids*, and a fine plant of *Kalosanthes Phœnix;* and one of two dollars to James Kent, for *Green and Hothouse Plants. Baskets*—for the best, to Jerome Graff, gardener to C. Cope; for the second best, to Robert Kilvington; of indigenous flowers, for the best, to Meehan & Saunders. *Bouquets*—one pair, for the best, to Jerome Graff; for the second best, to James Kent. *And special premiums*—two dollars to John Pollock, gardener to James Dundas; three dollars to the same, for a general display of plants; two dollars to James Kent, for a display of plants; two dollars to H. A. Dreer, for fine seedling Verbenas and Chinese Pinks. The Committee called particular attention to a very fine seedling Petunia and a good Pelargonium, grown by John Gray.

Grapes—three bunches, for the best, of a black variety, to John Pollock, gardener to James Dundas; for the second best, to Jerome Graff, gardener to C. Cope; for the best of a white variety, to the same; for the second best, to John Pollock. *Strawberries*—two quarts, for the best, to James M. Tage; for the second best, to A. L. Felten. *Cherries*—three pounds, for the best, to Isaac B. Baxter. *Currants*—two quarts, for the best red, to A. L. Felten; for the best white, to Isaac B. Baxter. *Special Premiums*—one dollar to A. L. Felten, for a dish of fine Black Mulberries, and of two dollars

each for a display of Peaches and Nectarines, to Jerome Graff, gardener to C. Cope.

The Committee reported having examined ad interim, the Pennsylvania Strawberry, from Gerhard Schmitz, specimens unusually fine, measuring five inches in circumference and weighing 160 grains troy.

Vegetables—display by a market gardener, for the best, to A. L. Felten. Special premium of one dollar to Alexander Burnett, gardener to H. Pratt McKean, for a dish of fine Mushrooms.

At the recommendation of the Committees—Ordered, that all the premiums awarded for objects shown at the meetings in May or June, be paid, notwithstanding they were staged after the time specified in the schedule, as the change of hour was not generally known.

The Fruit Committee to whom was recommitted that portion of their ad interim report, read at the stated meeting in February last, relating to the Strawberry question for reconsideration—reported that the plant on which the facts and opinions were therein embraced and founded being destroyed, no examination of the identical plant was practicable; therefore, they report the same back to the Society without alteration, viz:

AD INTERIM FRUIT REPORT.

February 21, 1854.

A Strawberry Plant in pot—from Thomas Meehan.—This plant contained one ripe, perfect berry; *size*, large, nearly three and three-fourths inches in its horizontal circumference; *form*, roundish; *color*, brick-dust red, with brownish seed set in superficial indentations. Besides this ripe berry, it had on it four deformed and defective unripe ones, and eight abortive flowers. The anthers, that were still visible, showed it to be a staminate variety; and by some of the Committee it was considered the Cushing.—With this plant the following letter to the Committee was received on the 9th instant:

To the Fruit Committee of the Pennsylvania Horticultural Society:

GENTLEMEN:—In seeking the name of the Strawberry sent herewith, I beg to make a few remarks in connection. Last spring I exhibited before the Society three plants, as I believed of the same variety as this. One plant having all the flowers pistillate; another all hermaphrodite. By direction of the Society my remarks sent with the plants were printed. Friends at a distance subsequently came forward, who expressed an opinion that my plants could not be '*Hovey's Seedling*,' but must be some variety in which the power to vary in its sexual character was a '*characteristic*' feature. I may be allowed to observe that if this variety be not Hovey's—a strawberry

that bears abundantly, will produce fruit averaging from three to three and a half inches in circumference—not only in its natural season, but the first week in February, and *hermaphrodite* in its sexual character, is at least *equal to* Hovey's. The history of this kind, so far as my knowledge is concerned, is as follows: When I took charge of this establishment, in 1852, a large plantation of strawberries had been made the preceding fall, and which were given up to me as a new bed of Hovey's Seedlings. The plants being set eighteen inches apart, afforded good opportunity for observation. On their first flowering every one that flowered up to a certain date, comprising nearly the whole of them, bore pistillate blossoms. There being no others on the place, and being at that time myself a firm believer in the '*unchanging*' theory, I mentioned to my esteemed employer the '*fix*' we were in, and suggested the propriety of procuring some staminate varieties. A week or so afterwards he being at Springbrook, we examined the bed together, when little else but *hermaphrodites* were to be found. This suggested to me the experiments you are already advised of. The plant from which this fruit was obtained was from a plant marked while in flower last spring. It is a very weak plant, as you will perceive by its inability to bring to perfection, at this early season of the year, the other very few flowers that opened, and that it was hermaphrodite you will readily perceive by the dead stamens at the base of the fruit. In its *natural season* of fruiting the color is *deep* crimson.

Very respectfully,

THOMAS MEEHAN.

Mr. Meehan is well known as one of our most estimable, intelligent, and scientific cultivators. His honesty and integrity, we are fully convinced, would not suffer him to advance an opinion the soundness of which he did not most conscientiously believe. And by all who knew him it is freely admitted that his views on horticultural subjects are remarkably correct. Entertaining, as we do, these opinions of Mr. Meehan, we regretted the appearance of his communication to the Society, on the 17th March, 1853, respecting the changeable sexual character of Hovey's Seedling Strawberry. Being persuaded that he had been led, unintentionally, into error, we were unwilling to take any action, officially or individually, in regard to his communication, under a conviction that his acknowledged discernment, honesty, and intelligence would eventually enable him to discover the unsoundness of his experiments, and cause him unhesitatingly to repudiate them.—His letter has, however, now brought the matter fully before us, in such a way

that we are no longer at liberty to decline its investigation. In the paper read before the Society, and referred to in his letter to the Committee, he broadly asserts that *Hovey's Seedling may be staminate or pistillate, at pleasure, by cultivation.* In proof of this assertion, he exhibited three plants, each in a separate pot—one having none but pistillate blossoms; the second none but hermaphrodite blossoms; the third containing blossoms some of which were pistillate and the others hermaphrodite; and these several sexual differences he attributed entirely to cultivation. Now, if each one of these three plants was a genuine Hovey's Seedling, Mr Meehan has most unquestionably and conclusively established the truth of the doctrine for which he contends. The vital question, then, to be solved is, *was each of these plants a genuine Hovey's Seedling?* This point we will now examine. In the communication to the Society no evidence of their genuineness is presented, apart from the simple statement that they were Hovey's Seedling. On this point, however, the letter to the Committee does not leave us so much in the dark. So far, however, from establishing their genuineness, it furnishes strong grounds for a contrary belief. For in it Mr. Meehan gives us their history in the following words: "When I took charge of this establishment, (Springbrook,) in 1852, a large plantation of strawberries had been made the preceding fall, and which were given up to me as a new bed of Hovey's Seedling." Subsequently, in speaking of the plants in this bed, he emphatically assures us "*there were no others on the place.*" This bed then was the source whence Mr. Meehan obtained the plants with which he experimented. And the only evidence he had that they were Hovey's Seedling was that they were given up to him as such. In this stage of the investigation it is of some consequence to know whether this bed was made by a person in whose honesty and accuracy implicit confidence could be reposed. It is known that Thomas Ryan's successor, and Mr. Meehan's immediate predecessor, was gardener to Mr. Cope in the fall of 1851, when the above mentioned bed was set out; but we question whether Mr Cope or Mr. Meehan will say that he was entitled to such confidence. It is a matter of record that there were a number of varieties at Springbrook the year before. On referring to the proceedings of our Society for March, 1850, it will be seen that Ben Daniels exhibited a "*bed*" containing the following six varieties of strawberries, viz: Hovey's Seedling, British Queen, Buist's Early May, Keen's Seedling, Sciota, and Cushing. At that meeting the proceedings also show that the Fruit Committee awarded "a special premium of ten dollars to Ben Daniels, gardener to C. Cope, for the magnificent display of strawberries, embracing several foreign and native varieties." It is barely

possible that all these plants, embracing six varieties, were in some way or other lost: but it is probable that such was the case? Is it not far more probable, as they formed so attractive a feature at the March meeting, and excited at the time such universal admiration, that they were not only retained, but that they had increased in numbers: and that some of them were used in making the "*new bed of Hovey's Seedling*" in the fall of 1851. For we have the positive assurance of Mr. Meehan that there were no strawberries at Springbrook when he took charge of it in 1852, except those contained in the bed whence he took the plants with which his experiments were conducted. But even admitting that this bed was made entirely from a plantation which originally were undoubted Hovey's Seedling, it by no means follows that the bed contained none but genuine plants of this kind. For no bed, of any variety, can exist for two or three consecutive years in a bearing state without having its purity more or less impaired by accidental Seedlings. Many of the seed, that necessarily fall to the ground, vegetate and produce plants—some of which will differ from their maternal parent in sexual organization, time of inflorescence, period of maturity, and in various other particulars. We have seen strawberry seed, that were planted in midsummer, produce plants that bore fruit the very next year. There is no certainty, therefore that all the plants in a bed are of one kind, unless they are all produced by runners of a single plant. In regard to the plants in the bed at Springbrook, Mr. Meehan says in his letter to the Committee,—"on their first flowering every one that flowered up to a certain date, comprising nearly the whole of them bore pistillate blossoms." * * * * * "A week or so afterwards, he (Mr. Cope) being at Springbrook, we examined the bed together, when little else but hermaphrodites were to be found." The question here arises,—how can this difference in the sexual character of the blossoms, at these two periods of time, separated by an interval of "*a week or so*," be accounted for, if it were not owing to the presence of more than one variety in the bed? It is certainly not explained by the adoption of Mr. Meehan's views; for if those views be correct, no such sexual diversity ought to have existed,—all the blossoms should have been pistillate or all staminate, as all were subjected to the same cultivation. Again, in allusion to the plant we received from him, he says in his letter to the Committee: "*It is a very weak plant as you will perceive,*," &c. Then according to the doctrine developed in his communication to the Society, it ought to have produced all pistillate blossoms; but it did not, they were all either hermaphrodite or staminate. The remarks now made, we think are sufficient to invalidate any inferences drawn from Mr. Meehan's experiments,

since it has been shown there is no certainty that the plants employed in those experiments were genuine Hovey's Seedling. We regret that our regard for Mr. Meehan prevented us from examining the three plants when they were exhibited by him at the March meeting of the Society. Had that been done, the prfitless discussion that has subsequently arisen, and which has resulted in no little unkind feeling, might perhaps have been obviated. But as we have now engaged in the investigation, we have subjected the plant sent to us by Mr. Meehan, to a careful and rigid examination to ascertain its genuineness. And, after having made this examination, we are prepared to say most emphatically, unreservedly, and unequivocally, *it is not a Hovey's Seedling.* Should Mr. Meehan still be unconvinced that his experiments were based on uncertain data, and consequently that any conclusions from them, however legitmately drawn, are illogical and unreliable, we trust he will repeat them in such a way as to avoid the sources of error to which his former ones are amenable. Let the plants, with which he may experiment, by all means, be runners taken from one and the same plant; we shall then have conclusive evidence that they are, at least all of one kind. And should he determine to continue his experiments in this direction, we would also advise him to obtain, if possible, runners from each of the three plants exhibited by him in March last, and subject some of the runners of each to his several modes of cultivation. The result will either substantiate his doctrine, or satisfactorily prove that these three plants were three separate and distinct varieties, possessing invariable, unchangeable and immutable sexual characteristics, unalterable by cultivation, however diversified by human sagacity. After the above was written, one of the Committee received a communication from Mr. Meehan, in which he informs us that the three plants exhibited by him at the Meeting of the Society in March, 1853, "*were thrown away soon after the exhibition I having no idea that there would ever be occasion to refer to them again.*" This loss we regret. We, learn, however, from Mr. Cope, that he has three or four hundred pots of plants, (taken it is to be hoped from the same "*new bed of Hovey's Seedling,*") in his forcing house at this time, "*and,*" he remarks, in a letter to a member of the Committee, "*however little dependence the Committee may feel disposed to place in the statements concerning the experiments in progress, yet the result will nevertheless be placed before them for their judgment.*" Should Mr. Meehan, in this large collection, be so fortunate as to find, (and if his theory be true he undoubtedly will,) three plants possessing the several distinctive sexual characteristics of the three he exhibited on the former occasion, we trust they will not be "*thrown away,*" but experimented with, by him,

in the manner already suggested, or else placed in the hands of some other reliable person, for this purpose. In his communication to one of the Committee, Mr. Meehan also states explicitly, that the plant sent to us is not one of the three exhibited before the Society, but was from a plant that had borne hermaphrodite flowers. It apppears, then, that it, at any rate, has not changed its sexual character, the blossoms having been hermaphrodite before, and are hermaphrodite now notwithstanding its present feebleness.

It is probably within the recollection of many of the members of the Society, that views somewhat analogous to those of Mr. Meehan were, at one time, maintained by the late Mr. Downing. He contended that the natural condition of Hovey's Seedling was staminate; but by permitting the old plants to bear for several successive years, their luxuriance was impaired, and their sexual character altered—in other words they became pistillate. And to prove the correctness of his position, he announced his intention of sending to the Massachusetts Horticultural Society several of his plants in pots. After that announcement, as nothing more is found in the Horticulturist on the subject, it is probable that he abandoned the doctrine. Be this, however, as it may, we have been credibly informed that he did send the plants to Boston, and that the Fruit Committee of the Massachusetts Horticultural Society decided they were not Hovey's Seedling.

The Treasurer sumitted his semi-annual statement of accounts.

Members Elected.—Dr. A. L. Ellwyn, Lloyd Chamberlain, J. L. Moss, John P. Aertsen, Thomas White, George H. Burns, A. Tourtelot, John Jacob Habermehl, Robert T. Conrad, Dr. Robert P. Thomas.

Objects Exhibited.

Plants.—By Robert Buist:—Kalosanthes Phœnix, *new*, Geranium Kingsbury pet, Gloxinia grandis, G. Victoria regina: Specimen plant, Medinilla magnifica—12 plants—Tremandra verticillata, Vinca alba, Begonia semperflorens, Boronia viminea, Sollya gracilis, Cuphea platycentra, Allamanda nereifolia, Kalosanthes, Beauty de Charonne, K. Phœnix, Hydrangea hortensis, Oldenlandia Deppiana, Gesneria lutea. *Orchideæ*—Cattleya Forbesii, Dendrobium Pierrardi, Oncidium Harrisonii, O. pulvinatum, O. sp.—10 Gloxinias—Frederick Lennig, rubra; rosea, caulescens, Maria Van Houtte, Caleb Cope, cartonii, atro-rubra,candida and Hand leyana.

By Thomas Robertson, gardener to B. A. Fahnestock:—eight Fuchsias—Psyche, Parson, Hebe, Sir John Falstaff, Palma, Expansion, Beauty of Deal, Madam Sontag and Ajax.—ten Gloxinias—Monarch, Napoleon, rubra, rubra grandiflora, Professor de Caisne, Princess de Lamballe, William Griffith, Cartonii, Countess de Bocarmé, Godfrey de Bouillon and Victoria regina: 12 plants—Allamanda nereifolia, Geranium Tom Thumb, Rondeletia speciosa, Hydrangea hortensis, 2 Achimenes longiflora, A. Escheneria, 3 Gloxinias and 3 Fuchsias.

By John Pollock, gardener to James Dundas:—*Orchids*—Saccalobium guttatum, Catleya Mossiae:—Specimen plants—Stigmaphyllon ciliatum, Fuchsias flavescens—2 Voltigeur, 2 Snowdrop, Exoniensis and Ajax: 12 plants—Allamanda nereifolia, Nierembergia major, N, minor, Cuphea platycentra, Adamia versicolor, Begonia nitida, Clerodendron fallax, Geranium Hebe, G. Compte de Paris, G. Albo sanguinea, G. Seedling, and a collection of 40 plants.

By Alexander Burnett, gardener to H. Pratt McKean:—*Fuchsias*—2 Psyche, Dodd's Magnificent, Parson, 3 Corallina, Beauty of Dean and Ajax:—Gloxinias Scotii, maculata, Cartonii, Godfreya, rubro-grandiflora, rubro-candida, Fyfiana, carnea, speciosa and albo-sanguinea:—Specimen plant—Pentas carnea.

By James Kent: *Fuchsias*—Honey Bell, Pet; Mussænda frondosa, Cryptolepis longiflora and a large collection in display.

By Jerome Graff, gardener C. Cope:—Broughtonia sanguinea, *new*.

By John Gray:—Fine Seedling Petunia and Pelargonium.

By Meehan & Saunders:—Cut flowers of Verbena Mazeppa.

By Henry A. Dreer:—Seedling Verbenas and Pinks.

Basket & Bouquets—By Jerome Graff—a handsome Basket with 199th flower of the Victoria regia from the same plant, and a pair of hand Bouquets.

By James Kent:—A pair of hand Bouquets.

By Robert Kilvington:—A fine Bouquet.

By Meehan & Saunders:—A Bouquet of Indigenous flowers.

Fruit.—By Jerome Graff, gardener to C. Cope:—*Grapes*—Black Hamburg and Muscat of Alexandria.—*Peaches*—Early York, Eliza, Druid Hill, George 4th late Admirable and Royal George.—*Nectarines*—Elruge, Early Newington Pitmaston, Orange and Downton.

By John Pollock, gardener to James Dundas:—*Grapes*—Black Hamburg and White Frontignac.

By Isaac B. Baxter:—*Cherries*—Red and White Currants—Gooseberries and Orange Raspberries.

By James M. Tage:—Fine specimens of Moyamensing Strawberries.

Albinus L. Felten:—Ten dishes, Strawberries, White Pine, Pine and other kinds, Red Currants, Cherries, Black Mulberries and Gooseberries.

By Robert Kilvington:—Gooseberries.

Vegetables.—By A. L. Felten:—A fine display.

By William Grassie, gardener to C. P. Fox:—A few kinds.

By Alexander Burnett, gardener to H. P. McKean: Mushrooms.

By Jerome Graff, gardener to C. Cope:—Two kinds forced Potatoes.

THE FLORIST
AND HORTICULTURAL JOURNAL.

THE TULIP.

In drawing the attention of your readers to this class of flowers, I would not wish, in this utilitarian age, to advocate the extravagant "Tulipomania," which raged with such epidemic force in Europe some two centuries ago, neither do I expect to establish so much enthusiasm, as is practised at the present day amongst the florists of Britain, but we may indulge more freely in the cultivation of this gorgeous flower, without intrenching upon the more needful necessities of existing society. Take it in all its variety, or the different modes of culture, and we have an acceptable subject, one worthy of our most careful attention. As a prize flower, it excels most others in its nobleness, beautiful texture, and feathery stripes, besides which there are several other species and varieties, that are equally interesting in a general sense.

The word Tulip is derived from THOULYBUN, its Persian name, in which country it is abundant, and where it is considered an emblem of perfect love. CHARDIN says, "When a young man presents one to his mistress, he gives her to understand, by the general color of the flower, that his body is on fire with her beauty, and by the black base of it, that his heart is burned to a coal," and this reminds me of a witty anecdote relating to our present subject. A lady and gentleman being in company in the garden, she asked him which flower he preferred, roses or tulips. Why, madam, he replied, if I may choose, I should prefer your "two lips" to all the roses in the world.

Our present genus forms the type of the natural order Tulipaceæ, and belongs to the class Hexandria, and order Monagynia of Linnæus. Its geographical range is confined to the continent of Europe, and adjacent isles. The *Tulipa Gesneriana*, which is the one from which all the prize varieties have emanated, is a native of the Levant, but is found plentiful in Persia and common in Syria. The *T. suaveolens* is a native of Southern

Europe, and is the one most commonly used in pot culture, under the names Duc van Thol (single and double) and Tournsol, which last is the most handsome, being much larger and finer in color than Van Thol. All the genus is worthy of notice, but, besides the above mentioned, the species *Oculis Solis*, *sylvestris*, *cornuta* and *præcox*, may be particularly mentioned. There are also some very handsome and singular varieties, which have been produced from a mixture of the different species, designated *Perroquets*, producing large flowers with jagged or deeply-torn edges, and also others that are double, as *Sweet scented yellow*, *La Belle Alliance*, *Extremité d'Or*, *La Candeur*, *Rex Rubrorum*, *Marriage de ma Fille*, *Grand Formidable*, &c. All, with the exception of T. gesneriana, T. cornuta, and T. sylvestris, are early blowers, and may be used in pot culture, or the open ground.

Tulips were formerly divided into so many classes, that it was often arbitrary with the judges where they were placed, but there are at the present day only two principal divisions, viz.: *Byblomens*, those having a white ground, with purple or rose markings, and *Bizarres*, those with yellow and brown colors. These two are subdivided into *Flamed*, having the usual feathering on the margin, and a heavy stripe of the same color passing down the centre of each petal, and *Feathered*, having simply the feathering without the stripe. The criteria of a good tulip are as follows.

The stem should be strong, elastic, and not less than twenty-four inches high; the flower ought to be large, and contain six petals, which collectively form a handsome cup, the base being horizontal, and gradually rising into perpendicular, so as to compose a little more than the lower half of a globe, the edges ought to be entire, free from notch or serrature, and both the bottom and top of each petal well rounded and broad. The ground color at the bottom should be a clear white, if a Byblomen, or pure yellow in a Bizarre, and the markings ought to form a distinct feathering over the top, descending a portion of the way down the sides, without any break of the ground color on the edges. In a *Flamed* tulip, there ought to be a heavy stripe down the centre of each petal, the sides of which, towards the top, may expand from the main into distinct stripes, widening out as they approach the margin, so as to unite as it were in the segment of a circle, and finally becoming a portion of the upper feathering. In the *Feathered*, the marking may end in a fine point in the centre of each petal, without the continuation of the stripe, and generally the feathering is more nearly confined to the edges of the petal.

As reference has been made above to the "Tulipomania," as it has been

justly termed, we may mention, for the sake of showing how far enthusiasm can go, that in Holland, about the year 1635, when this madness was at the greatest height, one root, called the *Viceroy*, was sold for 2,500 florins, another, the *Semper Augustus*, for 2,000 florins. One person agreed to give 4,000 florins, with a new carriage, two horses, and complete harness and yet another to give twelve acres of land for a single root. Think of this, ladies; how would you like papa to become so ridiculously singular?

Thanks to our more sober senses, we can now admire the beauties of nature, and safely recommend the cultivation of this noble flower in its most perfect and beautiful forms, without the risk of setting the world on fire, depriving our belles of their handsome equipages, or prevent them from receiving their dowrys. The cultivation of the Tulip, like all other things, is simple when rightly understood. It may be planted in the open ground, grown in pots, or in glasses filled with water like the Hyacinth.

Culture in the open ground.—If the early blooming and fancy varieties only are intended to be grown, the most suitable soil is a tolerably fertile one, with a well drained bottom, the bulbs being planted in October, and the surface covered through the winter with litter, which, however, should not be left on too long after the leaves appear above ground, or they will be injured, and the blooms destroyed; but to grow the fine prize sorts, some care is to be used in the compost and management all through. There is perhaps no flower deteriorates more than the finer tulips by neglect, but fortunately the requisite care is not very expensive or over tedious. The following practice has succeeded satisfactorily with the writer, and no doubt will do so with others, if attended to. About the beginning of October, choose an open and airy situation, mark out the size of the requisite bed, and excavate to the depth of twenty inches. If the bottom is not well drained it must be made so artificially, so that all the superfluous water may pass away, throw in twelve inches of a mixture composed of two-thirds sound friable earth of rather light substance, and one-third thoroughly rotted cow or horse manure, be sure that the dung is well decomposed or the colors will be liable to run; above this fill in to three inches higher than the surrounding surface, to allow for sinking afterwards. As the work proceeds, throw in a little caustic air-slaked lime amongst the upper base, which will assist in destroying any insects that may be secreted, besides adding to the suitableness of the material for the intended purpose. The middle of November is the best time to plant. Choose well formed and solid bulbs, and after loosening the upper stratum up well, plant eight inches apart and four inches deep, smooth all over and when severe weather

sets in, cover the bed with litter or straw, or what is still better a coping of boards closed at the ends, which will more effectually keep off the wet and prevent the frost from penetrating. As soon as the plants appear above ground, the covering must be taken off, and here is again the advantage of a wooden covering, which can be removed at pleasure, the object being to give all the light and air possible, without the frost acting upon the foliage, for if once seriously injured, you may bid good bye to first class flowers for the season. Accept all genial rains, but reject sleety rain and snow, and when the flower buds begin to show colour, fix over an awning of light and thin canvas, which will prevent the blooms from losing their greatest beauty, and keep them much longer in flower. This covering should be raised sufficiently high to allow for walking under, and should be so constructed as to roll up, in order to let in genial showers or the free air on all mild evenings.

Culture in pots.—This method is only resorted to for furnishing the window or greenhouse. The best kinds for this purpose are the early bloomers mentioned above. If a very early bloom be required, the bulbs should be potted not later than the middle of September, indeed it is best to pot early in all cases, which insures a healthy stock of roots before the tops are advanced, and gives greater certainty of fine bloom. The neglect of this is the main cause of failure in most instances; bulbs if left to themselves in the open ground throw out a considerable quantity of roots before the growth proceeds upwards, and all the care and skill that may be employed, will not make up for a deficiency in this respect, consequently it behoves us to follow nature, as near as circumstances will allow. The most suitable soil is equal portions of fresh loam, and thoroughly rotted cow manure. To produce the best effect on the stage or in the window, it is best to place a single root in each small pot of a pint measure, which will admit of greater convenience for removing about at pleasure, or mixing the colors to better advantage. Place the bulbs so that they be just covered, and after fixing all in a dry and cool place, cover the whole with six inches of sand, rotten leaves, or spent tan bark; here let them remain until winter sets in, when they may be put into a *cool* cellar or other like place. If a succession of bloom be required the first lot may be removed about the middle of December into a temperature of 45°, and when the tops have advanced a little, again into a warmer situation; a house where roses are being forced is very suitable at this stage. The remainder may be introduced at intervals of two weeks and treated in the same way. Keep near the glass and let the plants be freely exposed to

the sun, water freely when in active growth, and give once a week a little diluted guano, at the rate of one ounce to a gallon of water.

Culture in glasses.—The time recommended for pot culture will also apply to this, choose the strongest bulbs, and after filling each glass with rain water, place a root on the top of each, so that it may just touch the water but not more, place in a cool dark cellar, and remove for succession as advised above. When the plants are in active growth, the water will require to be changed occasionally, and if a few drops of clear diluted guano be dropped into each fresh supply, the flowers will be finer, and the foliage much darker colored.

Propagation.—The Tulip is only propagated from offsets, and by seed. Generally, there is one or more offsets to each root after blooming, but when it is desirable to increase faster, the bulb before being planted should have two or three incisions cut up perpendicularly from and through the root end, about one-fourth the length of the bulb, and be allowed to dry for two or three days. This is only advisable in extreme cases, and ought not to be resorted to in very choice sorts, unless from duplicate stock, as it destroys the bloom for the season, and there may be danger of loosing the root altogether, if not carefully done. To propagate from seed: When the seed vessel turns brown, the seeds are ripe. To have the least shadow of a chance for superior prize flowers from seed, it is requisite to choose from none but what are first rate, and generally it is best to save from the most promising breeders, as they produce the most healthy and best marked offspring. The seed may be sowed as soon as ripe, or kept in the pod till the following March, sow in a cold frame and cover lightly, using a light base mixed with a portion of vegetable mould. During growth, shade in bright sunshine and admit air freely at all times after the plants are well started. When ripened off, take up the small bulbs in the same way as blooming stock, and kee in a very dry cool room, mixed with a small portion of dry earth. In future seasons use the same treatment as for flowering bulbs, with the exception of shading at blooming time. It takes from four to five years before these seedling bulbs will bloom, and after this they will be only what are called "*breeders*," that is, having one color with an indistinct feathery marking; however, in this state the forms "bottom," and other good properties may be seen, so that the spurious ones can be destroyed. Various methods are practised to "break" the colors, such as planting in other kinds of soil, mixing a quantity of lime rubbish with the earth, and growing at a distance from where raised, sometimes one and at other times another, has the desired effect, but whoever wishes to raise fine seedling tulips must have

patience, and none but an enthusiast will try it. There is one consolation, however, which is, when once broken, the after progeny remains generally true to character.

WM. CHOLTON,
New Brighton, Staten Island.

ON THE PROPAGATION AND CULTIVATION OF THE MAGNOLIA.

BY J. P. KIRTLAND, M. D.

Several horticultural journals have recently directed public attention to the Magnolia, as a valuable ornamental tree. Too much cannot be said in its praise; but in all of the articles which have appeared upon it, there is discoverable an omission of the practical details necessary to be understood and followed, to insure success in any attempts at introducing it into our grounds. If the amateur cultivator should rely on those grounds as guides, he would find his efforts, with most of the species and varieties of this interesting genus, to result in loss and disappointment.

Meehan, in his very valuable work on ornamental trees, has in part supplied those omissions. Perhaps the following suggestions may afford some additional aid:

SUGGESTION FIRST.—*Magnolias of much size and maturity cannot be transplanted with any great prospect of success.*

With the best of management, in favorable seasons, a small per centage, especially of the more shrubby or dwarfish kinds, may survive a removal; yet they will usually linger in an unhealthy condition, between life and death, for a number of years. It then necessarily follows, that the stocks on which the more valuable kinds are to be propagated, should be either raised primarily on the location where they are destined to remain, or be transplanted there, while young and of small size.

If the former plan be decided on, the ground must be prepared by digging a hole from two to three feet deep, and four feet in diameter. This must then be filled with a compost, consisting of vegetable mould from the forest *one* part, and well decayed sods cut from a sandy soil, and containing little or no lime, *two* parts. When this compost is firmly settled, a dozen

or more seeds of the MAGNOLIA ACUMINATA should be deposited two inches from each other on the surface, and be covered one inch deep by riddling over them vegetable mould through a coarse sifter. On the surface may then be deposited a piece of board, a flat stone or a few bricks, in order to furnish shade and temporary protection. They must, however, be removed as early as the first of March, of the ensuing season.

The best time for sowing the seeds, is soon as possible after they are liberated by the opening of their capsules, in the month of August. They may, however, be preserved a long time, and conveyed to great distances, if mixed with rotten-wood or moist loam, in a covered box. If permitted, under any circumstances, to become quite dry, their vitality will be destroyed.

They may be successfully sown in a cold-frame, in the manner above recommended; and the yearling seedlings may subsequently be transplanted to their permanent locations. In the western States, where this species is indigenous, small seedlings of one season's growth may be found in autumn in the vicinity of large trees, and can be easily detected by the form, color and flavor of their two large radical leaves; but in the spring, they will have disappeared, from the depredations of rabbits.

Yearling seedlings can be safely removed, if a ball of earth be taken up with their roots; and if carefully invested with moist moss and matting, they may be transported to any distance.

When permanently located, they should be surrounded with a temporary crib of boards, say twenty inches square and eight high, which should contain a few inches of brush and old leaves, sufficient to shelter slightly the young tree. If rabbits resort to the ground, a lattice-work protection will be required. After two or three years, they will attain a size sufficiently large to receive grafts or buds of other species.

SUGGESTION SECOND.—*To insure a vigorous and hardy growth of wood, and a profuse production of large and well-developed flowers, the stock must be of a kind adapted to the soil and climate, and, at the same time, one which will furnish the most abundant supplies of nutrition to the graft or scion*

The cultivator of the rose is aware how much better many of the delicate Bourbons and several of the Remontants will grow on a vigorous Manetti, Boursault, or Michigan stock, than on their own roots. A strong growing and hardy stock exerts a similar influence over many of the delicate and dwarfish species of the Magnolia.

Our indigenous *M. acuminata* possesses all the requisites for this purpose. Of itself, it is a most beautiful tree. As a stock, it improves every variety and species budded or engrafted on it—at least so far as my acquaintance extends.

The M. tripetala, propagated on its own roots, will grow very luxuriantly for a few years in this vicinity, when the main stock will suddenly die, without any apparent cause. A number of less healthy sprouts will appear in its place the ensuing year, and after a short duration will in turn die, and their places will be filled with a succession of weakly growths, till at length the crown and roots will likewise perish. If propagated on the M. acuminata, I have no doubt this would be obviated, and the tripetala would become one of our most lofty and enduring species.

The M. grandiflora is only half hardy at Philadelphia; yet I am inclined to hope, that if p opagated on the acuminata, and slight protection afforded it dur ng winter, it may be made to live both at New York and Cleveland. It is worthy of trial.

In the vicinity of the latter city, the M. glauca, conspicua, soulangeana, purpurea, and Thompsonii, reared on their own roots, assume a shrubby or dwarfish habit; but the first three named, I have propagated on the stock of the acuminata, and they are all attaining the size and habits of middling sized trees. The latter two I have no doubt will pursue a similar course, under the same mode of propagation which I am about to extend to them.

There are several species and varieties which I have not been able to obtain, that would succeed equally well in this locality, if treated in this manner. Among them are the Macrophylla, cordata, and auriculata.

The *acuminata*, or "*the cucumber tree*," as it is termed at the west, will doubtless take the place of all other kinds for stocks. Seeds in any quantity can be procured in some parts of the western States. They should be procured at the time the capsules begin to open; and without permitting them to dry, they should be mixed with rotten-wood or moist earth, in which condition they may be shipped to any part of the globe. The seedlings may be fit to engraft or inoculate, when two or three years old.

A week or two before they form their terminal buds, say about the 12th of July at Cleveland, buds inserted after the mode of inoculating the cherry, will frequently take. They should be tied in with coarse woolen yarn, in preference to bass-bark. The better method to propagate the kinds on this stock is by *side* grafting.

For this purpose, the scions should be cut in February, and preserved in the usual method. Early in April, in this vicinity, they should be inserted.

The process is akin to whip-grafting, only the stock is left in its entire length. A slope two inches long is taken off from one side of the base of the scion. On this, a tongue is raised. A strip of bark and wood is next cut from one side of the stock, in length and size exactly adapted to the slope on the graft; and on it is also raised a tongue to coincide with that raised on the side of the graft. These cut surfaces of the scion and stock are then brought together, and their tongues adjusted, when they are to be secured by wrapping them with strips of cloth dipped in melted grafting wax. During the month of May or June, the buds of the graft will begin to expand, but not till long after those of the stock have fully opened.

The circulation being preserved and kept up by leaving the stock entire, enables the surfaces of the graft and stock to unite; but if the stock be shortened anterior to the occurrence of that union, the graft will rapidly perish. As soon as the union has apparently formed, and is manifested by the growth of the scion, the stock must be gradually cut in, but in so gradual a manner as not to give the tree too severe a shock. In five years time from planting the seed of the stock, I have had a fine bloom of an engrafted limb of a M. soulangeana; and at this date, though vegetation is suffering from a severe drought, this graft is so abundantly supplied with nutrition from the luxuriant cucumber stock, that it has formed a growth of three feet in length, and is now developing a second crop of flowers.

Cleveland, Ohio, July 31, 1854.

Among the valuable drawings of Chinese plants in the library of the Horticultural Society, is one of a dark rugged root, some ten inches long, and six inches wide at the broadest end, of which nothing more is known than that it was obtained from the public vegetable market. There can, however, be no doubt that it represents a Yam of some kind.

According to M. Stanislas Julien, as quoted lately by M. Decaisne, a Yam, called Chou-Ya, or Tchou-Yu, Tou-Tchou, Chau-Tchou, Chau-Yo, &c., is universally grown in China. That of Nankin is the largest, and of excellent quality; another from the Chou country is still better. Its stems trail on the ground, the leaves are three-lobed; and in the autumn what are called fruits, but no doubt small tubers, appear among the leaves, and eventually drop off. This is perhaps the root represented in the place referred to. There are, however, many other sorts.

But the Chinese Yams have attracted no attention in Europe. It is probable that they have been considered too tender, our notions of a Yam being formed from East and West Indian reports. It seems, however, that one at least of the Chinese Yams is as hardy as a Potato, and likely to become a formidable competitor with the Potato itself.

M. Decaisne tells us that the French experiments with a Yam introduced from Shanghae, and called erroneously Dioscorea japonica, justify the expectation that it will become a plant of real importance in cultivation. "If," says M. Decaisne, "a new plant is to have a chance of becoming useful in rural economy, it must fulfil certain conditions, in the absence of which its cultivation cannot be profitable. In the first place, it must have been domesticated in some measure, and must suit the climate; moreover, it must, in a few months, go through all the stages of development, so as not to interfere with the ordinary and regular course of cropping; and finally, its produce must have a market value in one form or another. If the plant is intended for the food of man, it is also indispensable that it shall not offend the taste or the culinary habits of the persons among whom it is introduced. To this may be added that almost all the old perennial plants of the kitchen-garden have been abandoned in favor of annuals, wherever the latter could be found with similar properties; thus *Lathyrus tuberosus*, *Sedum Telephium*, and *Cirsium oleraceum* have given way before Potatoes, Spinage, and the like. Now, the Chinese Yam satisfies every one of these conditions. It has been domesticated from time immemorial; it is perfectly hardy in this climate (Paris); its root is bulky, rich in nutritive matter, eatable when raw, easily cooked either by boiling or roasting, and then having no other taste than that of flour (*fécule.*). It is as much a ready-made bread as the Potato, and it is better than the Batatas or Sweet Potato. Gardeners should therefore provide themselves with the new arrival, and try experiments with it in the different climates and soils of France. If they bring to their task, which is of great public importance, the requisite amount of perseverance and intelligence, I have a firm belief that the Potato Yam (Igname-Batatas) will, like its predecessor the Potato, make many a fortune, and more especially alleviate the distress of the lower classes of the people."

Testimony of this kind appears too important to be regarded lightly, and we are glad to second the recommendation of so judicious an experimentalist as M. Decaisne. When we consider how nearly our common Black Bryony (*Tamus communis*) is related to the Yams, the probability of the new plant becoming naturalized among us receives further support. We would also

suggest that all owners of ships trading with Shanghae, or other northern Chinese ports, should direct their captains to bring home a quantity of the Yams exposed for sale in the markets. We know that there are many varieties, possibly belonging to more species than one, and it is deserving of inquiry whether one may not suit the climate of Europe better than another.

The species described by M. Decaisne is called by him *Dioscorea Batatas*, or Igname-Batate, and is described as having much the appearance of the common Tamus. Its stems are annual, but its roots, or more properly speaking rhizomes, are perennial, and directed downwards perpendicularly, sometimes to the depth of a yard, if the soil is loose enough to admit them. The haulm is about as thick as a goose quill, cylindrical, turning from right to left, and about two yards long, violet, with small whitish specks. When left to themselves the stems lie flat on the ground, and strike root very readily. The leaves are opposite, heart-shaped, and triangular, upon purple stalks. The "roots" vary in length and thickness with the soil in which they grow. They may usually be compared to clubs, the blunt end of which is as big as the fist, but which tapers downwards till it is no bigger than the finger. Their skin resembles in color the well-known beverage coffee and milk, and is covered with numerous fibrous rootlets. Under the skin is a white, opaline, very friable, slightly milky cellular mass, filled with flour, which softens and dries in cooking, till it acquires the taste and quality of a potato, for which it might be mistaken. Each plant may produce several of these roots, though in general there are only two or three.

M. Decaisne and his friends who have tasted this Yam think that no serious objection will be taken to the employment of it as food. The only question is whether a root which buries itself so deep in the ground will suit the habits of cultivators. It is not, however, easy to understand why, in Europe, the trifling mechanical difficulty of getting up such roots should be a hindrance, when the Chinese with their rude tools find the operation easy enough. In that country the Yam is grown on a great scale. M. Montigny, who sent it to France from Shanghae, calls it *Sain-In*, and says it is highly productive, the country people consuming it as largely as the Potato in Europe. For propagation the smallest roots are set apart and pitted, to keep them from frost. In the spring the roots are taken out and planted in furrows pretty near each other in well prepared ground. They soon sprout and form prostrate stems, which are made into cuttings as soon as as they are 6 feet long. As soon as the cuttings are ready a field is worked into ridges, along each of which is formed a small furrow, in which the pieces

of the stem are laid down and covered with a little earth, except the leaves. If the weather is rainy the cuttings strike immediately; if dry they must be watered till they do strike. In 15 or 20 days the roots begin to form, and at the same time lateral branches appear, which must be carefully removed from time to time, or the roots will not grow to the proper size.

These directions are simple and easy enough to follow; so that we see no reason why, as M. Decaisne remarks, the plant should not be perfectly suited to field cultivation. The crop would hardly be more troublesome than a crop of Turnips.—*Gard. Chron.*

ORCHIDS.

Orchidaceous plants, whether regarded for the beauty of their colors, the singularity of their organization, the grotesque forms which they assume, or the delicious fragrance of their blossoms, must be admitted to be among the most extraordinary vegetable productions of the globe. It is somewhat singular, that notwithstanding the abundance in which they are found, particularly in the tropics, they should have escaped the observation of collectors so long, and equally so, that of those few which were brought into Europe, so few of them were preserved for any length of time.

In the early editions of the *Hortus Kewensis*, only fifteen species are recognized, and up to the beginning of the present century, only fifty-one species of exotic Orchideæ are enumerated in our best plant catalogues. Nor was it till within the last ten or fifteen years, that the great influx of Orchideæ has taken place, and that chiefly owing to a few spirited individuals, who, struck with their extraordinary habits and beauty, made them their study, and encouraged their introduction. Amongst the most conspicuous of these is the Duke of Devonshire, who has been most liberal in his encouragement, not only by sending out collectors to discover new sorts, but also by patronizing the cultivation of them at home, on a very extensive scale.

Every year is adding to the number of new species imported, and also to the number of admirers of this grotesque group of plants, so that it has now become as fashionable to possess a collection of Orchideæ as it was at the beginning of this century to possess one of heaths.

The geographical distribution of Orchideous plants is not so very equally divided as that of some other natural orders. For in Europe, and other temperate regions of the globe, they are less abundantly found, and toward

the arctic regions disappear, while in and toward the tropics they abound in surprising numbers. In the temperate regions they are, for the most part, terrestrial, growing in meadows and pastures, while within the tropics they are chiefly parasitical, or rather epiphytal, growing upon the trunks and branches of living trees and shrubs, and also upon the trunks of those that have fallen. Some can hardly be said to have any fixed place of abode, and are found forming large tufts, firmly knit together by their numerous and tortuous roots, and suffering little from being thrown about as the passing kick of the traveler may send them.

A great number of tropical Orchideous plants are found adhering to the branches of trees in the most dense forests in an epiphytal manner, not fixed paratisically by their roots to the bark of the trees that support them. In such situations they are consequently shaded from direct light by the leaves and branches which surround them: they are also placed in a moist atmosphere and high temperature, ventilation and evaporation being almost precluded.

To the fructification of Orchideous plants it may be necessary to make some allusion, inasmuch as it is still but imperfectly known; and although Mr. R. Brown, and a few others, seem to have the production of plants of this order from seeds at their command, still the generality of cultivators have failed in producing similar results, and not a few, otherwise intelligent and accurate in their botanical researches, deem the theory altogether visionary.

The singular plants which constitute this class are distinguished from all others by the anomalous structure of their flowers. These do not, as is usually the case, contain a certain number of stamens, surrounding a central ovarium or style, but on the contrary, are furnished with a solitary, fleshy, undivided process, round which the sepals radiate, and which supplies the place of stamens and style. The nature of this process has been variously explained; the modern opinion is, that it is formed by the accretion of the stamens and style into a single mass, and this opinion seems to be confirmed by analysis and analogy. Omitting, therefore, a notice of such theories respecting its nature as are opposed to that which is now received as the most correct, it will suffice to explain a little in detail the opinion which is adopted in this work. The central process, called the columna or column, is understood to be formed by the filaments of three stamens surrounding a style, and by mutual accretion firmly united with it, and with each other, into a solid mass. Of these three stamens, it most frequently happens that the *two lateral are sterile*, and not furnished with even the

vestige of an anthera, and that their presence is not indicated by more than two irregular excrescences, as in *Orchis*, or by the same number of small appendages, as in *Satyrium*, or by two horn-like or tooth-like processes, present in several of the genera, with waxy pollen masses; it even happens, and not unfrequently, that no vestige of them remains. But in *Cypripedium*, both are fertile, and bear perfect anthers, while the central stamen is barren and foliaceous.

When the lateral stamens are, as above stated, abortive, which is the most common form of the column, the central stamen bears at its upper extremity an anther, which is either movable or fixed firmly in its place. The pollen which this contains, assumes three very distinct appearances in different tribes. It is either granular, dividing into many separable small pieces, as in *Orchis;* or powdery, consisting of an infinite number of granules, as in *Spiranthes;* or waxy, when it consists of a few large concrete masses, as in *Epidendrum*. The stigma is most frequently concave, and placed nearly under the anther, but in such a manner that there is no contact between it and the pollen. In what way, therefore, fecundation can take place among truly gynandrous plants, is one of those mysterious contrivances of nature which have not as yet been explained. It is generally believed to take place by absorption in some undiscovered manner, before the flowers expand; but it is extremely difficult to understand how this can occur in many genera.—*Hort. Review.*

THE SYMMETRY OF VEGETATION.

The same principles are manifest among flowers. A flower is a body in which that system of equipoise, of which symmetry is the great result, is as clearly traceable as in branches or leaves, or in the veins of leaves. Either one-half of a flower balances the other, or one series of organs alternates with another, or any deviation from symmetry that occurs in one part, is immediately conpensated for by some peculiar development specially provided in another part. Take a blossom of the common Goose-foot (Chenopodium). It consists of five slender arms or stamens, which are exactly alike, and opposite which are five other external parts, forming a star with five rays, the two series corresponding precisely the one with the other. This is one of the simplest of known forms; should a flower be reduced much lower, there is scarcely room for the manifestation of special symmetry. The most complicated structures are merely different in degree. In the

Rose, in the Crowfoot, in the Magnolia, or in the Water-lily itself, the same class of facts pervades the organization. Among those plants in which augmented number produces a very complex condition is the Verticord. In this flower we have five fringed bodies on the outside of the whole; those bodies consist each of five arms, of which the left and right external arms correspond with each other, and the second inner left corresponds with the second inner right arm; so that we begin with a structure of five parts, each of which is subdivided into five others. In the next place five more parts are placed within and between the first, as if to insure the requisite balance. Then come 10 (twice five) other bodies (scales), which stand, five opposite and five between the second series of five. Finally, we have 10 other parts (twice five again), completing the symmetry of the whole structure, and alternating with the 10 scales which preceded them; the whole presenting a striking example of the way in which, in a complicated structure, the principles of equipoise and symmetry are maintained. Were it possible to weigh the corresponding parts we should, no doubt, find their weights the same, as well as their magnitude form. The numerical proportions of such a flower are $(5 \times 5) + 5 + (5 \times 2) + (5 \times 2)$. The red Brugmansia offers an instance of a more simple arrangement. In this flower we do not at first perceive any symmetry except that the end of the long tubular corolla is divided into five equal lobes, which, if they had been formed by rule and compass, could not be more exactly alike. On the outside of this corolla, upon each of its five lobes, are three ribs, in all fifteen or 5×3; and this plant never produces any other number. Upon opening it we find the same number, five, still prevalent in the stamens; and the external cup or calyx is also in reality divided into five triangular teeth, although, owing to the way in which the teeth adhere, this is not at first sight apparent. The fundamental number still being five, this structure is represented by $5 + (5 \times 3) + 5$. All these remarkable examples of floral symmetry seem to show that there is a centrifugal force operating in the formation of flowers, which, being equal in all directions, can scarcely fail to produce such a result. In the ripe fruit of the Apple, no symmetrical arrangement of parts is at first apparent; but it once had a perfectly regular structure, in which all the parts were exactly balanced, and even when ripe its symmetry is visible to the eye of intelligence. At its end will be found five points, which represent the five external divisions that originally belonged to it. If the fruit is cut across, the five-pointed star in the centre indicates the symmetrical number of the Apple to be five. If we count the parts in the Apple blossom, we find five outer divisions in its

calyx; five thin delicate plates next succeed as the corolla; then 20 threads for the stamens; and, finally, five other central points or arms complete the structure; all equal and alike in each series, all placed in a certain fixed relation to each other around a common centre, which itself corresponds with the surrounding organs. This structure is $5+5+(5\times4)+5$. In an ear of corn the same kind of symmetry exists, although more difficult to discover. Each grain stands in perfectly symmetrical relation to the others; one right, one left; each a little higher than the preceding. Even the small scales of chaff which enclose the grains are placed in an equally symmetrical position with respect to each other. The demonstration of this, however, involves minute details, which need not be entered upon at present. When properly understood it assists in further proving that symmetry is a fundamental law in plants, and that the most dissimilar forms of vegetation obey that law.—*Professor Lindley's Symmetry of Vegetation.*

GROWING ORCHIDS FROM SEEDS.

At the present time there are few subjects connected with plant growing on which there is less recorded information, than that of growing Orchids from seeds. I am not aware that there is any case on record of hybridisation having been affected among Orchids, though there seems no doubt that such could be accomplished by careful manipulation, an inference I draw from reasoning analogically on experiments, made here to get seed. Many of our indigenous Orchids appear to seed freely, whilst comparatively few exotic species among our cultivated collections produce seed, circumstances suggestive of the idea that the latter require artificial assistance, which can be readily afforded, by carefully applying the pollen masses to the viscid face of the column and rostellum. But whether the seeds of hardy Orchids be generally imperfect, or the necessary circumstances for vegetation, and the subsequent growth of the young plants wanting, we certainly do not find crops of young orchids growing spontaneously in various stages of growth, as occurs with most other endogens, though, when orchid seed does vegetate under favourable circumstances, a very large number of the myriads of extremely minute seeds contained in the ovaries are perfect, whether artificially impregnated or not. Within the last five years, seedlings of the following species have been raised in the Orchid-house, at Glassnevin, namely, Epidendrum elongatum, and crassifolium, Cattleya Forbesii, and Phaius albus, the seeds of which all vegetate freely. The

manner of sowing the seeds, and treating the young seedlings, has been to allow the fine dust-like seed to fall from the ovaries as soon as they show symptoms of ripeness, which is readily known by the ovaries bursting open on one side. When this takes place, they are either taken from the plant and shaken gently over the surface of the other Orchid-pots, on the loose material used for growing them in, or on the pots prepared for the purpose, after which, constant shade, a steady high temperature, with abundance of moisture, are all requisites which are absolutely necessary to insure success. In the course of eight or nine days after sowing, the seeds, which, at first had the appearance of a fine white powder, begin to assume a darker color to the naked eye, and, if looked at with a Codrington, or even a simple lens, evident signs of vegetation may be perceived, which increase until the protrusion of the young radicle and cotyledon takes place, which varies from a fortnight to three weeks. From this period of their growth, the young plants grow rapidly, and the rootlets lay hold of whatever material is supplied to them. If the seeds happen, either accidently or intentionally, to be made to vegetate on bare wood, as in some instances has been the case, the young roots extend themselves in different directions, adhering closely to the bark, and making great progress compared with the growth of the stems, thus affording beautful examples of the manner in which epiphytical plants fix themselves so firmly on the highest boughs of lofty trees in tropical forests, as well as accounting for the isolated positions they frequently occupy in their natural state. The principal difficulty to contend with in rearing the young seedlings has been found to consist in their treatment during the first year, particularly the winter months, when they are very liable to perish, if anything approaching to extremes of moisture, draught, cold, or even heat be permitted; though a steady medium of all those requisites is necessary. The second year's growth has been one during which the plants made much progress, and the only two kinds which have been brought to a flowering state have bloomed the third season. These are Epidendrum crassifolium and Phaius albus. *D. M. Glasnevin Botanic Garden, Dublin, in Flor. Cabinet.*

SWEET SCENTED VERNAL GRASS.

We have been furnished by Dr. Emerson with a copy of the following communication, addressed by him to the editors of the Boston Cultivator, where it was published in the number for the 22d of April. It relates to a subject particularly interesting to those living in the vicinity of Philadel-

phia, where opportunities exist for testing the accuracy of the author's observations, and the present time is the very best in all the year for doing so. Reference is made to communications upon the subject published elsewhere, but those who possess the Farmer's Encyclopædia—and no intelligent farmer should be without a copy of this excellent work, for constant reference upon practical matters connected with agriculture—may find in it a good deal of information relative to the grass in question, under the heads of *Anthoxanthum odoratum* and *grasses*.

MESSRS. EDITORS:—One of the late numbers of the Boston Cutivator contains a pargraph which runs as follows: "Several papers are recommending the sweet-scented vernal grass, (*Anthoxanthum Odoratum*,) as a good pasture grass for cows. We hope no one will be induced to try it, as there are many better kinds. It is a mistake that the excellence of the Philadelphia butter is owing to the grass. The idea never could have proceeded from an observing farmer. Cows are not fond of it, and only eat it when better cannot be had. The June grass, (*poa pratensis*,) abounds in many pastures around Philadelphia. It is one of the sweetest and most nutritive grasses, and is well known to be one of best for feeding dairy and fattening cattle."

These summary conclusions I regard as hastily drawn, and trust they will not generally be received without further examination of the subject, which is one, I conceive, not a little interesting to those especially devoted to agriculture, but also to the community at large, everybody being more or less concerned in the improvement of dairy products. Laying claim, as I do, to be the first who pointed out the sweet-scented vernal grass as furnishing the proximate cause of that delightful flavor for which the butter in the Philadelphia and many European markets is distinguished, I do not feel content to remain silent under the taunt thrown out against my capacities for observation. My opinions upon the subject were not made up in a flash, but the results of years of close inquiry, examination of pasture-fields and meadows where the cows fed, which produced the highest flavored butter brought to our market, and finally to chemical analysis, and crucial experiments, as I regard them, made under my direction by many persons in many places. The late Mr. Skinner, whose agricultural writings and publications have done so much good in extending useful information throughout our country, asked me several years ago what it was that made Philadelphia spring butter so much better than any other to be found elsewhere in his extensive travels in the United States? Excellent butter he had met with in several places, but none that possessed the exquisite flavor

of Philadelphia butter. Having spent some time in the investigation of the subject, I communicated to him my views, and these may be found by any one who will take the trouble to refer to the Farmer's Library, for April, 1845, or the Patent office Report for 1849–50. After several years additional attention and observation, since my first publication, I find no reason to change any of the opinions formerly expressed. These have been extensively published in newspapers and agricultural periodicals, but, so far as I know, have never been assailed or treated so ungraciously as in the paragraph quoted from the Boston Cultivator. The person who furnished the article assumes to know something about the grasses in the pastures of this vicinity, and speaks of the "*June grass*," (*poa pratensis*,) as abounding in them. This he describes as one of the sweetest and most nutritive of grasses, and would seem to infer that it may possibly furnish the proximate principle which confers on Philadelphia butter its peculiarly fine flavor. Not having myself ever heard of a grass in this locality designated as the "June grass," I have asked others whose residence in the country ought to have made them acquainted with a grass described as abounding. But no one appears to know anything of June grass. Poa pratensis, or common green grass, that which constitutes the almost universal herbage of every other portion of our country, exists around Philadelphia, though here its quantity is limited by its rival in the sward. Like all the poa family, the common green grass, or poa pratensis, is destitute of any fragrant or aromatic principle, though it certainly gives out a grateful odor when newly mown. The sweet-scented vernal grass, however, possesses a distinct aromatic principle, which can be readily distilled from it, and the basis of which is the well known benzoic acid, familiarly known to apothecaries as the Flowers of Benzoin. Within a circle of many miles diameter around Philadelphia, every field left out of culture a few years, becomes coated with its sweet verdure—the soil being filled with latent seed. The longer the meadows or upland pastures are left unbroken by the plough, the greater the predominance of this fragrant herbage. It is precisely these old pasture grounds, of twenty or thirty years standing, that furnish the highest flavored butter, and that, in the latter part of May, when the grass is in bloom, fills the surrounding country with a rich, vanilla-like fragrance.

In the communications published by me relative to this grass, I have expressly stated that it was not to be regarded as a first-rate hay grass, or cultivated separately as such. But as a pasture grass, I deem it valuable for many reasons, among which are the following: 1. It furnishes the first spring bite, so grateful to the stock of all kinds. Cows are very fond of it

until its culms or stems become dry, when these are pushed aside for fresher grass. 2. It possesses an aromatic principle capable of communicating a delightful flavor to the milky products of the cow, as well as to the meat of sheep and other stock grazed upon it. It furnishes a fine aftermath and rich autumnal pasturage in moist seasons. These, I think, are sufficient reasons for regarding the sweet-scented vernal grass, making, as it does, an important portion of all the best pasture lands of Europe, worthy the attention of the American farmer. As the seed sells readily here for seventy-five cents to one dollar per pound, a bushel weighing six pounds, being sufficient to sow two or three acres, some might think this alone a sufficient inducement to enter into its culture. Hoping that those who may read this, and have the opportunity, will refer to my former communications relative to this grass, I remain,

Respectfully,

G. Emerson, *Philadelphia.*

[*Farm Journal.*

VINE MILDEW.

The mildew known by the name of Oïdium Tuckeri, which proves so destructive to Grapes, consists of a net work (spawn, *thallus*, *mycelium*) of white and very fine filaments, which cover the green and healthy parts of the Vine, and occasion the formation of brown or black blotches. From these filaments, which are all on the surface of the epidermis of the vegetable nourishing them, arises a forest of small, simple, erect, cellular stems, of which the last articulation quickly becomes a large oval cell, capable of propagating the Oïdium like a seed.

Independent of these reproductive bodies, the Oïdium Tuckeri possesses brown fruits, usually pedicellate, the coatings of which are membranes composed of cells, and containing an immense number of very small seeds, which likewise readily germinate. These fruits are usually larger than the terminal seeds just spoken of; but their size does not often exceed that of the latter; resembling them in form, they are frequently borne on the same footstalk, so that one might imagine they resulted from the transformation of the primitive seeds. M. Cesati was the first that I know of who recognized the existence of these fruits, but he did not suspect that they belonged to the Oïdium, and he took them for the reproductive organs of a distinct sort of mildew, which he called Ampelomyces quisqualis. M. Amici

has since attributed them to the Oïdium Tuckeri, of which he thinks they are the most perfect organs of generation. I have myself seen the organs in question on diseased Vines in the neighborhood of Paris. I have not only seen them as other observers have, sometimes elongated, sometimes globular, but I also perceived that among the globular there were some large ones which were perfectly spherical and sessile on the byssus which produces them. These observations have led me to conceive quite another idea of the Oïdium Tuckeri than that admitted by those authors, who, up to the present time, have been considered as authorities on the subject.

There is a sort of mildew common in our country which, in its first stage, is not in any way different from the fungus nourished by the diseased Vine. The Erysiphes, as they are now called, present, for the most part, ovoid terminal seeds, and also brown many-seeded conceptacles similar to those above mentioned. By means of numerous observations, made principally on the E. pannosa, Knautiæ, guttata, adunca, holosericea, Berberidis, Prunastri, lamprocarpa, and Martii, I ascertained that the fruits in question assume various forms in the same species of Erysiphe; that they are cylindrical, elongated, simple or two-celled, naked, or surmounted with beaded cells, which are ovoid, roundish, or even perfectly spherical; that among the latter some are without any filiform appendages, whilst others are furnished with the same distinctive hairs as the thecigerous fruits, and resemble them so much as not to be distinguishable by their external characters only.

Many mycologists still doubt whether the ovoid seeds which cover with a white dust the thread-like thallus, on which, at a later period, the ascophorous conceptacles of the Erysiphe appear, do really belong to these fungi. They believe that these seeds, and the white byssus which produces them, constitute together a distinct and complete plant, a fertile Oïdium, of which the Erysiphe is only a parasite, or a subsequent companion. They maintain that fungi have only one set of reproductive organs; but this opinion is every day losing credit.

Several very strong reasons are now opposed to Erysiphes being considered as parasites, or the usual companion of various kinds of Oïdium.

In the first place, the association of existence observed in the case of Erysiphe and the so-called Oïdium—for instance, between E. pannosa and O. leuconium, and between E. graminis and O. monilioïdes, &c.—is so constant that it would imply a necessary relation between these minute plants; so that if the Oïdium is a different plant from Erysiphe, the latter must certainly be a parasite on the former. Besides one cannot distinguish in

the mycelium which bears at the same time the necklace beads of the Oïdium, and the fruits of the Erysiphe, filaments peculiar to either; for, by careful examination , it will be perceived that the conceptacles of the Erysiphe actually proceed from the same threads which elsewhere give rise to the generating pedicels of the naked spores.

In the second place, in order to be certain that there is no real parasitism in the case, and that there are not two distinct plants associated together, but only one endowed with several organs of generation, it is sufficient to consider the many-seeded fruits before spoken of, which vary so much in their form that they present every possible intermediate stage between the spores of the so-called Oïdium and the ascophorous conceptacles of Erysiphe, the most perfect reproductive organs which nature has given to these fungi.

These many-seeded fruits being thus present in the Oïdium in the shape of the separate articulations of the necklaces of spores, and on fertile Erysiphe as concepticles exteriorly identical with their perithecia, evidently unite Oïdium to Erysiphe, and furnish the best proof that that they are one and the same genus. In other words, the organs in question do not, as M. Amici would induce us to believe, solely constitute the reproductive apparatus of Oïdium, supposed to be a peculiar genus, but they really belong to Erysiphe as much as the naked spores of Oïdium, and represent a mode of propagation intermediate between that by spores and that by thecigerous conceptacles.

From this fact it may be concluded that Erysiphes, like many other fungi, possess at least three distinct modes of propagation, and three special sets of organs for that purpose. In the order of their successive development, the first and most simple is that which consists in naked spores, disposed in necklace-like rows, which I call CONIDIA ; then come conceptacles of various forms, full of innumerable and very fine seeds, and to which I have given the name of PYCNIDIA ; and finally, the more perfect globular, black SPORANGIA are produced, in which one or more few-seeded thecæ are engendered.

This being admitted, it is evident that the Oïdium Tuckeri, with its naked terminal spores and its many-seeded fruits, represents an Erysiphe reduced to its two secondary modes of propagation; so that the most important blank remaining to be filled up in the history of this enemy of the Vine consists in determining to what species of Erysiphe it belongs. Now, until its ascophorous fruits shall have been observed, the determination of its species cannot be made in a satisfactory manner, for its two other organs of reproduction are insufficient to distinguish it from a great many other congenerous plants, possessing identical organs.*

If the fungus on the Vine is an Erysiphe, we need not be surprised at the damage which it does. Erysiphes are all true parasites;† and they always cause diseases more or less serious in the plants which nourish them.

No one is ignorant of the injurious effects produced by Erysiphe Humuli on the Hop, or how prejudicial E. bicornis is to the Maple, as well as E. clandestina to the common Hawthorn, and E. Pisi to late Peas, &c.

The disease usually called the mildew, so formidable to the Peach tree, is apparently caused by nothing else than Erysiphe pannosa, a species which is also prejudicial to the Rose tree; this mildew is likewise richin conidia, pycnidia, and sporangia. There has never been any hesitation, so far as I know, in attributing to these various Erysiphes the atropry, the organic malformation, and the sterility with which their victims have been afflicted; wherefore, then, should the Erysiphe which attacks the Vines be less capable of inflicting injury than its fellows, and why should we seek to explain otherwise than by its action the disorganization of the Vines thus attacked? If the Vines were supposed to be diseased before the appearance of the parasite, the same supposition, notwithstanding its improbability, must be made not only in the case of all the other plants, wild or cultivated, which nourish Erysiphes, but also as regards those at whose expense Uredo, Ustilago, Rhytisma, and a host of other parasites live.

It may undoubtedly be admitted that these do not attack indiscriminately all the individuals of the species on which they live, and that the physiological condition of the individuals, varying with age, situation, seasons, and other circumstances, exercises some influence in the development of fungi; but this general proposition, which would in several repects be justified by

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* To whatever species of Erysiphe the one which lives on the Vine be referred, its barrenness in ascophorous fruits cannot be a special character; for several are known, such as E. Martii, E. communis, E. lamprocarpa, &c., which are frequently the same in this respect, either owing to the plants which bear them, or the situations where these plants are growing, or to other circumstances which have escaped our observation.

† It will be readily understood that, among several species, the filaments of the mycelium are provided with small rounded appendages, which are probably organs of suction. We have more especially observed them in Erysiphe Martii, and in E. communis. M. Gasparini, and afterwards M. Mohl, have seen several such in the Vine mildew, where, in fact, they can be readily found.

the mode of life proper to many of these fungi, appears no longer to hold good when their enormous increase assumes the character of an universal plague, which constitutes a phenomenon as far beyond our explanation, as it is above our comprehension.—*M. Tulasne, in Comptes Rendus, October 17th*, 1853.

SKETCH OF THE DISTRIBUTION OF THE MOST IMPORTANT OF THE PLANTS YIELDING FOOD.

There is not one region among the foregoing which has not been compelled to deliver up some of its inhabitants for the decoration of our pleasure grounds, or to the service of Science in our Botanic Gardens; and although we are obliged to afford artificial warmth in winter to those from the proper tropical kingdoms of Martius, Jacquin, Adanson, Reinwardt, and Roxburgh, and even to protect them from the unpropitious climate in summer, yet there remains a great number of plants from all parts of the earth, and the mountain plants, at least, from the tropics, which when cultivated by us in the open air, seem to corroborate the proposition, that Man is, in this respect, lord of Creation, and that howsoever Nature may have arranged the vegetable carpet of the earth, he has the power to alter this arrangement according to his liking, and, above all, for his service. But it is not so; and the facts on which the statement is founded are but illusory when we look, not at a little spot of earth like a Botanical Garden, but at cultivation on a large scale, which alone is really of importance.

Here, Man again reassumes his character of a helpless creature; his activity in plowing and manuring is but an insignificant aid to the prosperity of cultivated plants, to which climatal variations prescribe as distinct ranges of distribution as to the wild Flora, and which the favorable or unfavorable influence of a season brings to luxuriant development or destroys. All over the globe has man, for the supply of necessary food, selected most solely summer plants, that is, such plants as complete their whole vegetative processes, or at all events, the development of all the parts containing nutrient matter, within the course of a few months. By this means he has rendered himself independent, in the half tropical regions of the evil action of the dry season, and in the higher latitudes of the destructive influence of cold, and thus insured the possibility of cultivating plants, which there must be killed by the drought of summer, here by the cold of winter.

Setting aside the cultivation of fruits which serve rather pleasure than necessity, there remain but three aborescent vegetables in the whole world which can be included among the true food-plants, namely, the Bread-fruit, the Cocoa-nut and the Date, which actually furnish the chief proportion of the food of great bodies of men, and over widely-extended areas, and thence have become objects of culture; the *Cycadaceæ* and Sago-palms, on account of their starchy parenchyma, can at most perhaps be taken into our reckoning only in a very limited circle in the East Indies.

All the rest of the food-plants are either such as possess a subterraneous, usually tuberous stem, which sends up shoots above the soil, persisting but a few months, on which develope flowers and fruit, while during the remaining time, sleeping, as it were, beneath the protecting coverlet of earth, it sets the disfavor of the climate at defiance, or such as die at the end of a short period of vegetation, and insure the future reproduction, in the slumbering germ of the seed. To the former belong, for instance, the Potato, derived from the Cordilleras of Chili, Peru, and Mexico; to the latter, almost all our corn-plants.

One plant alone distinguishes itself among the cultivated plants by a peculiar mode of vegetation, a plant which was perhaps the earliest gift of Nature to Man awakening to life, and thus the object of the earliest culture, I mean the Banana.* And this plant was not merely the first, but the most valuable gift of Nature; its slightly aromatic, sweet, and nutritive fruits are the sole, or at least the chief food of the major part of the inhabitants of the hotter regions. A creeping subterraneous root-stalk sends out on high, from lateral buds, a shaft fifteen to twenty feet long, which consists merely of the rolled-up, sheath-like leaf-stalks, bearing the velvet-like glancing leaves, often ten feet long and two feet broad; the midrib of the leaf alone is firm and thick, but the blade of the leaf on either side so delicate, that it is readily torn by the wind, whence the leaf acquires a peculiar feathery aspect. Among the leaves presses up the rich cluster of flowers, which, within three months after the shoot has risen, forms from 150 to 180 ripe fruits, about the size and form of a Cucumber. The fruits weigh, altogether, about 70 or 80lbs., and the same space which will bear 1000lbs. of Potatoes, brings forth, in a much shorter time, 44,000lbs. of Bananas; and if we take account of the nutritious matter which this fruit contains, a surface which, sown with Wheat, feeds one man, planted with Bananas affords sustenance for five and twenty. Nothing strikes the European, landing in

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*Musa sapientum.

a tropical country, so much as the little spot of cultivated land round a hut, which shelters a very numerous Indian family.

Not till long after did Man learn to know and cultivate the gifts of Ceres. It must, in fact, surprise us, at present, to see that but a few species of a single family of plants furnish the principal food of the greater proportion of mankind, namely, the so-called Corn-plants or *Cerealia*, of the family of Grasses. This family includes nearly 4,000 species, and yet not twenty of them are cultivated for the food of Man. In their real nature, these cultivated Grasses are all summer plants, but varieties have been obtained from some of the most important of them, which, in the proper climate, sown in autumn, germinate and pass the winter under the warm covering of snow, so that they are in a condition to shoot out strongly in the spring, while the soil is being prepared for the other summer plants. Bearing in mind these exceptions, it may be said, that the prosperity of all the *Cerealia* is dependent upon the temperature of the summer, or period of vegetation; and if we lay down their distribution on a map of the earth, it exhibits a girdle which does not deviate so much from the course of the Isotheral lines as many other conditions of vegetation.

But the conditions of temperature under which the Corn-plants vegetate, may perhaps be more accurately unfolded than is possible through a plan of the Isotheral lines. In Egypt, on the banks of the Nile, Barley is sown at the end of November, and harvested at the end of February, the period of vegetation therefore amounts to about ninety days, and the mean temperature of this season is about 69° 48′. In Tuqueres, near to Cumbal, under the equator, the time of sowing in the mountains, for Barley, is about the 1st of June, the time of harvest, the middle of November; the mean temperature of this vegetating season of 168 days, is 50° 12′. At Santa Fe de Bogota they number 122 days between seed-time and harvest, with a mean temperature of 57° 24′. If now the number of days is multiplied by the figures of the mean temperature, we obtain 6282 for Egypt, 8433$\frac{6}{6}$ for Tuqueres, for Santa Fe 6489$\frac{8}{6}$, therefore, as nearly the same number as the uncertainty in the estimate of the days, the accurate mean temperature and the want of knowledge whether or not the same kind of Barley is cultivated in all the places, will allow us to expect. Similar results are obtained for Wheat, Maize, the Potato, and other cultivated plants. We may express these results thus: Every cultivated plant requires a certain quantity of heat for its development, but it is the same thing whether this heat is distributed over a shorter or longer space of time, so that certain limits are not exceeded; for where the mean temperature sinks below 36° 24′, or

where it rises above 71° 36′ Barley will no longer ripen. Consequently, to define accurately the conditions of temperature which a plant requires to maintain it in a flourishing condition, we must state within what limits its period of vegetation may vary, and what quantity of heat it requires. This most remarkable circumstance was first observed by Boussingault, but unfortunately, we as yet possess not nearly sufficiently accurate accounts of the conditions of culture, in the various regions of the earth, to enable us to follow out this ingenious view in all its details.

I have chosen the Barley as an example in the preceding remarks, because it has the widest range of distribution of all the Cerealia, and is cultivated from the extreme limits of culture in Lapland, to the heights immediately beneath the equator. But it has by no means the same importance everywhere that it has in the northern region, where, in a little narrow zone, it appears as the sole bread-corn; and in the following observations on the distribution of the more important Cerealia, it will be considered only in reference to this last point. In Lapland and northern Asia, Rye soon appears beside it, but by the inclemency of the climate confined to favorable years, and therefore not properly to be regarded as the principal food. First in Norway, Sweden, Finland, and Russia, does the Rye become the peculiar bread-corn; and Wheat takes its place beside it in the north of Great Britain and Germany, as the Rye before joined Barley. In the centre of Germany, in the south of Great Britain, in France, and in a wide range toward the East, including the whole of the Caspian Sea, Wheat is the prevailing cultivated plant, which, in the basin of the Mediterranean and throughout North America, is associated with Maize. Rice takes the place of the latter in Egypt and in northern India, and holds undisputed rule in the peninsulas of India, in China, Japan, and the East Indian Islands, shares it in the west coast of Africa with Maize, which, on the other hand, is the exclusively cultivated corn-plant of the greatest part of tropical America, with only some unimportant exceptions. In southern America, Africa and Australia, Wheat again enters the field, with the decreasing temperature. The culture of *Tef** and *Tocusso*,† in Abyssinia, of Millet‡ in western Africa and Arabia, as well as of *Eleusine*,§ and Millet‖ in the East Indies, are quite of subordinate importance.

Some other plants bear a far more important share in the nutrition of mankind than the Grasses last named. Even in the most northern zone of

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* Poa Abyssinica.
† Eleusine Tocusso.
‡ Sorghum vulgare, and others.
§ Eleusine coracana and stricta.
‖ Panicum frumentaccum.

the Barley and Rye, the Buckwheat is an object of tolerably extensive culture. With the already named Banana, the Yams,* the Mandioc,† and the Batatas‡ contribute largely to the daily food of the inhabitants of the tropics, of the Old as of the New World, added to which, upon the Andes presents itself a peculiar vegetable, the Quinoa,§ a plant which simultaneously produces edible tubers and abundance of seeds, comparable to those of Buckwheat. Lastly, we may not pass over the *bread-fruit*, in the proper sense of the word, which is the principal food of the inhabitants of the large islands which extend from the East Indies through the whole tropical ocean, to the west coast of America, the gift of a large and beautiftl tree of the family of the Nettle Plants, which, from the use it is turned to, is called the Bread-fruit tree.‖ For the sake of variety, some also cultivate with it the Tarroo-root,** the *Tacca* tubers,†† or some Ferns,‡‡ the farinaceous leaf-stalks of which afford a dainty meal.

Last of all, I will mention the Potato, which has spread over the whole earth with such rapidity, from the mountains of the New World, that in many places it threatens, not exactly to the advantage of mankind, to supplant every other culture. Only a portion of its native land itself, Mexico, remains exempt, and but in recent times has cultivated a few poor tubers, at points on the coast, to set before the spoiled European guests what, with a strange perversion of the conception, one may call their native dish. A land, indeed, which perhaps thousands of years' culture of Maize has so little exhausted, that after a very little labor a bad Maize harvest yields two hundred-fold profit, which in good years amounts to six hundred-fold, does not want the Potato.

And we, who flatter ourselves that we are great agriculturists, who plow, manure, and sow with ingenious machines, imagine that we have done great things when we reap a twelve-fold harvest. Even this we do not owe to our art, to which we might so readily ascribe it. The worst-tilled soil produces a better harvest in a favorable year, than we can extort from the best soil with all all our industry in an unfavorable season. Truly, only he who looks no further than the clod which his plow has thrown up, can preserve the feeling of the importance of human activity in his bosom. He who lets his free glance rove over the earth's ball, and looks at large over the play of active forces, laughs at the digging, dragging, bustling, panting ant-hill,

* Dioscorea sativa.
† Manihot utilissima.
‡ Batatis edulis.
§ Chenopodium Quinoa.
‖ Artocarpus incisa.
** Arum esculentum.
†† Tacca pinnatifida.
‡‡ Acrostichum furcatum, Pteris esculenta, etc.

which we call Humanity, and which, with all its imagined wisdom, is not able to alter the slightest working of the laws which the tyrant giantess, Nature, has prescribed to her slaves.—*Schleiden.*

WE have been trying the patience of our subscribers rather severely in the last few months; but we cannot blame ourselves for the delay which has taken place. The neglect of the majority of our subscribers to perform their honest duty by us was the first cause of delay; and lately, the impossibility of getting paper made in time for us, has kept us back a month. We are now well supplied, and shall issue number after number, until we are in advance of time, instead of being behind. If our dear friends, who don't think it worth while to pay until near the end of the year, will please send us their subscriptions at the time they contracted to when they sent their names, we will be much obliged to them. We know that there are many persons who are not in the habit of paying for magazines or papers; but, as far as possible, we wish to get rid of such. There is no doubt that, in the majority of cases, it is the result of carelessness, but it is a carelessness very troublesome to publishers.

Our subscription list is a very satisfactory one, though we would not object to having it larger.

Our friends would greatly facilitate the speedy getting out of the succeeding numbers, if they would send us contributions on such subjects as they may have experience in. Any one can write his experience on such matters, and he will generally know or observe something which will prove instructive to others.

PENNSYLVANIA HORTICULTURAL SOCIETY.

The stated meeting of this Association was held Friday evening, July 18th, in the Sansom street Hall, the Museum Building having been recently destroyed by fire. The President in the chair. The display exceeded anticipations for midsummer, where little from conservatories could be expected. There were six large collections of greenhouse plants, among which were many of much beauty and interest. The new plants from Mr. Cope's were objects of attraction, especially so the Nepenthes lævis, a new species of the pitcher plant in bloom. The finely flowering plants from Mr. Fahnestock's were admired; the choice varieties of Mr. Knorr commanded

attention; the flourishing specimens of Mr. Buist were noticed, and the well grown, large plants of Gen. Patterson and Dr. Rush merited praise. The fruits comprised delicious grapes from three greenhouses—the Black Hamburgh; White Sweet Water, from Eden Hall; the Black Hamburgh, White Frontignan, from the Insane Asylum, and the White Frontignan, from Mr. Cope's, were specimens seldom surpassed at this season of the year. The peaches from the latter were very handsome; the gooseberries, from Mr. Baxter, were large; a fig, weighing six ounces, was brought by Dr. Rush's gardener. Apricots, pears, raspberries, gooseberries, &c., from various sources, served to complete the exhibition of fruits. Vegetables of the best quality came from A. L. Felten's and Alfred Cope's grounds.

Premiums were awarded as follows:

Collection of 12 plants, for the best, to Thomas Robertson; for the second best, to James Kent; for the third best, to Isaac Collins; and a special premium for a collection, to Robt. Buist. Specimen plant, for the best, to Thomas Robertson; for the second best, to Wm. Sinton, gardener to Dr. Rush. New plants, shown for the first time, a premium of five dollars was awarded to Jerome Graff, for Nepenthes lævies, &c.; and one of a dollar to Meehan & Saunders, for a fine petunia. Basket of cut flowers—For the best, to Jerome Graff; for the second best, to James Kent; of indigenous flowers, to Meehan & Saunders. Bouquets—Pair, for the best, to Jerome Graff; for the second best, to James Kent; and a special premium of two dollars, for seedling hollyhocks, very fine, to Paschall Morris & Co., West Chester. The Committee noticed a fine spicimen of Crinum amable, from Dr. Rush's houses.

By the Fruit Committee—Grapes, black variety, for the best, (Black Hamburgh) to John Riley; for second best (same kind) to A. Smith; white variety, for the best, (the White Frontignan) to John Riley; for the second best, (the White Muscat) to Anthony Smith. Apricots—For the best, to Wm. Johns; for the second best, to A. Parker. Plums—for the best, to Isaac B. Baxter. Figs—for the the best, to Jerome Graff. Gooseberries—for the best, to J. B. Baxter; for the second best, to the same. And a special premium of two dollars for a dish of peaches, to Jerome Graff.

By the Committee on Vegetables.—Tomatoes—for the best, to William Barry; for the second best, to James Jones. For the best display by a market gardener, to A. L. Felten, and for the best display by a private gardener, to William Barry.

The Secretary was ordered to report the amount of loss sustained by the Society, at the late fire at the Chinese Museum.

The subject of holding the Autumnal Exhibition, the place where, and time when, and of providing a hall for stated meetings, were referred to the Committee to superintend Exhibitions.

Six gentlemen were elected members.

The monthly stated meeting was held on Tuesday evening, August 15th inst. in Sansom Street Hall. The President in the chair. The display was far better than usual for the month of August, especially so in Greenhouse Plants. A fine specimen of the *Buonapartea serratifolia* from Mr. Cope's collection, was an object of much attraction; it is the first time that a plant of this species, has bloomed in this country; it was full ten feet in height, its flower-stem bearing innumerable greenish flowers, was more than half that altitude. Among Mr. Buist's handsome plants, was a beautiful specimen of the *Clerodendron Kæmpferii*, for the first time shown; also, the *Lobelia St. Clair*, not before seen on the Society's table. Mr. Fahnestock's gardener did himself much credit with his profusely flowering plants of the choicest varieties. Mr. Knorr's gardener brought a collection of select kinds, all well grown. From Mr. Dundas' grounds were large and fine specimens of established kinds. A table of richly flowering Balsams, Asters, Coxcombs and other annuals, was shown by John Lambert's gardener. The baskets of cut flowers and Bouquets were most tastefully arranged. In the fruit department, were very fine grapes, shown by John Riley, gardener at the Insane Asylum; by William Grassie, gardener to C. P. Fox; by A. J. Smith, gardener at Eden Hall; Alex. Burnett, gardener to H. P. McKean and Wm. Johns. Fine Peaches, Plums and Pears, came from Isaac B. Baxter's garden. The delicious Stanwick Nectarine, from Mr. Cope's, was the first time tested before the Society. Pears were exhibited by Mrs. Markau's gardener and Geo. W. Earl.

Vegetables, a very extensive display was made by A. L. Felten.

The following are the premiums awarded:

By the Committee on Plants and Flowers.—*Collection of* 12 *Plants in pots;* for the best, to Thomas Robertson, gardener to B. A. Fahnestock; for the second best, to Robert Buist; for the third best, to James Kent. *Specimen Plant*, for the best, to the same; for the second best, to John Pollock, gardener to James Dundas. *New Plants*, a premium of five dollars, to Jerome Graff, gardener to C. Cope, for a flowering specimen of *Buonapartea serratifolia;* and two dollars to Robert Buist, for the *Clerodendron Kæmpferii.* Basket, for the best, to James Kent; for the second

best, to Charles Miller. Of indigenous flowers: for the best, to Meehan & Saunders. Bouquets—one pair—for the best, to Charles Miller; for the second best, to Jerome Graff. Special premiums—one dollar, to John Pollock, gardener to James Dundas, or orchids, &c; one dollar, to Jerome Graff, for a design of cut-flowers, and two dollars to John Lambert's gardener, for a collection of annuals, balsams, coxcombs and asters.

By the Committee on Fruits—Grapes—3 bunches of a black variety, to John Riley, gardener to Insane Asylum, for Black Hamburg; for the second best, to William Grassie, gardener to C. P. Fox, for the same variety. Of a White variety—for the best, to Anthony J. Smith, Eden Hall, for White Syrian, and for second best, to the same for Frontignac. Plums—for the best, the Reine Claude, and for the second best, the Abricotte, to Isaac Baxter. Peaches—for the best, the Jane, to the same. Pears—for the best, to the same.

Special Premiums.—One dollar each, to Jerome Graff, gardener to C. Cope, for the Stanwick Nectarine; to John Riley, for West's St. Peters's Grape; to William Johns, for very fine Tokay Grapes, and to Mrs. Markau's gardener, for the Moyamensing Pear.

The Committee allude to a fine specimen of the Lawton Blackberry, received from the original propagator, William Lawton, of New Rochelle, N. Y.; some of them weighing 86 grains with the stem.

By the Committee on Vegetables—*Display* for the best, by a market gardener, to A. L. Felten.

The Committee on Finance reported, that the Treasurer's semi-annual statement was correct.

The Recording Secretary reported the estimated losses, sustained by the Society, by the fire at Philadelphia Museum building, on the 5th of July.

The Committee, to whom was referred, the subject of an autumnal Exhibition, reported a recommendation, after mature deliberation, to intermit, for this season, the usual grand exhibition, and solicit all contributors to send their Horticultural products to the great State Fair, to be held at Powelton, on the 26th of September, which was approved of by the Society; and a Committee of 12 members were ordered to be appointed to assist a similar Committee from the State Agricultural Society, in conducting the Horticultural department.

On motion, ordered that fifteen delegates be appointed to attend the session of the American Pomological Society, to meet at Boston, on the 13th of September next.

Two gentlemen were elected resident members of the Society.

VERBENA

SOUVENIR DE JANE HANSON Croft

COLOR PLATE

VERBENA

SOUVENIR DE JANE HANSON Croi··

COLOR PLATE
INTENTIONAL SECOND EXPOSURE

THE FLORIST

AND HORTICULTURAL JOURNAL.

VERBENA SOUVENIR OF JANE C. HANSON.

This variety was obtained by Mr. Thomas F. Croft of this city. It is for size, form and color, perhaps the best white variety now grown. Mr. Croft has been unusually successful in raising varieties of this favorite bedding plant; several of which we have noticed in former numbers. A drawing and some of the plants having been sent to M. Van Houtte, of Ghent, he has furnished us with the plates, and has given it the name which it bears.

POT CULTURE OF THE VERBENA.

As the Verbena merits a place, and most justly, among popular florists' flowers, perhaps a few hints on its cultivation in pots may be acceptable to those who have not hitherto adopted that mode of culture. I know of no plant more useful or ornamental as a pot-plant, for decorating the greenhouse during the summer season, when the proper inmates of that structure are enjoying the open air. If we take into consideration its graceful habit, the variety and brilliancy of its colors, which offer hues for every taste, and above all, the lengthened period it continues to produce its lovely blossoms, it is unrivaled and ought to be more generally grown in pots as specimens, more especially now that the numerous varieties are so much improved, both in form and color. The present season has been productive of some gems of the first class; and if the Verbena continues to be improved as it has been during these few years past, I have no doubt that the time is not far distant when it will form one of the leading features at our floral exhibitions. I do not know if my system of propagating this favorite be new; but as it is simple, certain, and expeditious, it may be as well to state how I proceed from the commencement. I fill shallow pans (such as are used for placing under

flower-pots) to within a quarter of an inch of the top with silver-sand, and pour in water sufficient to cover the sand. I then make the cuttings in the usual way, and push them into the wet sand; put the labels to them, and place them in a hot-bed frame where the heat ranges from 65 to 70 degrees, always keeping the sand wet. The advantages to be realized by propagating the Verbena in this way are, that the cuttings never require to be shaded in the brightest sunshine, consequently the young plants are not drawn up long and lanky; the cuttings never stop growing from the time they are put in until they are ready to pot off, which is in about six or seven days, when they may be drawn out of the wet sand, with a bunch of roots, without injuring a single fibre. The best time to commence operations for growing specimen Verbenas in pots is February, or as soon as vegetation commences for the season. It is desirable to pot a few of the best autumn-struck plants for the sake of early bloom; but they never make such handsome specimens, nor continue so long in good health, as the plants raised from the cuttings in the spring. As soon as the cuttings are well rooted, they should be potted into 3-inch pots, and placed in a gentle heat for a few days, until they are established in the pots; then top them, and harden them by degrees; never allow them to remain long in heat after they begin to grow, or they will form long naked stems. As soon as the pots are filled with roots, shift into 6-inch ones, and from these into 11-inch pots. During the growth of the plant, all shoots must be stopped in order to cause the plants to grow bushy; and never allow them to flower until the plant is properly formed and has as many leading shoots as are wanted. The compost in which I grow the Verbena, is equal parts turfy loam, leaf-mould and peat, with a little silver-sand added to keep the soil open. I water twice a-week with liquid manure, and occasionally syringe over head with clean water to cleanse the foliage. If the saving of the seed is no object, all flowers ought to be cut off as soon as they decay.

I need scarcely add, that the grand secret in the successful culture of this, as well as of all plants is efficient drainage; without this no plant will continue long in good health. If green-fly should attack your plants, fumigate with tobacco; for if the fly once gets a-head, the plants will never recover sufficiently to give satisfaction. Mildew is another enemy which must be looked after. As soon as it is perceived, dust the plants with a little sulphur, which will stop it from doing much mischief. Y.—*Gard. Chron.*

ACHIMENES PICTA AS A HOTHOUSE PLANT.

One of the most remarkable features, of by far the largest portion of what are termed stove plants, or natives of tropical climates, is their beautiful foliage. They are while growing, beautiful even without flowers, which latter are often of the richest and most dazzling color.

In culture, however, this presupposes skill, for it is not uncommon to meet with plants with anything but the foliage, which under good treatment they are capable of producing. This frequently arises from the want of moisture in the atmosphere, especially in a country like this, where the sweeping winds and hot sun are proverbial for their effect in ridding the air of vapor.

To cultivate a collection of tropical plants to the greatest perfection, (two houses are required,) the one dry, the other moist; the former for plants in a state of rest, the latter for those in a growing state, corresponding to the climate they are adapted for by an all-wise Providence.

But, Mr. Editor, we are digressing from our subject and running headlong into the philosophy of plant growing, instead of speaking of the beautiful plant at the head of the chapter. Achimenes Picta, is a native of New Grenada, where in the wooded heights on the east of Guaduas, Mr. Hartweg found it growing in a forest of Wax Palms (Ceroxylon andicola); there it prefers rocky ground, seldom growing more than five inches in height or producing more than two flowers on a stem. In cultivation it is very different, growing from one to three or four feet high, with frequently six flowers from the axil of a single leaf.

One important feature in this plant is, that it may be had in flower the year round, if a stove is given it; and increases readily by the tubers—each scale of which is capable of forming a plant—by cuttings or offsets, and by the leaves. The first two we generally adopt in the following manner: About the end of February the tubers are placed thickly in shallow pots or pans, and treated with a little bottom heat if obtainable, as soon as they are sufficiently advanced say into three or four leaves, they are potted into their flowering pots inserting the plant pretty deep in the pot, as they readily strike root all up the stem, placing from five to ten in a pot according to size and stock on hand, or if very scarce three will do, by finishing off they will ultimately fill the pot, taking a little longer time to do it in. Shallow pots are the best for this tribe of plants if obtainable, and may be from six to twelve inches over.

When they are potted, which will be early in April, no better place can be given them than a hot bed for a month or two. As the plants progress,

they may be stopped once with advantage, and as the growth proceeds, kept from crowding each other. By this time their foliage is getting good and they may be transferred to the stove, previously staking them out very thinly, as they are sure to fill up the entire space. These, with proper treatment, will flower from the middle to the end of summer one mass of their showy orange and scarlet flowers, which with the velvety black-green leaves, mottledand reticulated with pale whitish blue, in distinct broad bands, branching outwards from the centre, render it one of the most superb objects conceivable. All that is neccssary to get a succession, is, to strip off enough of the small shoots plentifully produced, every few weeks, placing them at once in the pots they are to flower in, and a little thicker than recommended above. This operation may be repeated till the time comes round for inserting the tubers again. As the old plants begin to look sickly they should be gradually dried off, and kept during winter either in the pots, or in dry sand, and where the thermometer does not fall below 50°. The soil should be very porous, and one-fourth of the pot filled with drainage, beginning with large pieces of crocks, ending with small, on which place some rough materials to keep it perfect. The following is a good proportion, fibry peat and decayed leaves each one-third, the remainder white sand, pulverized charcoal and potsherds.

EDGAR SANDERS,
Gardener to John F. Rathbone, Esq.,

Albany Aug. 21*st* 1854.

HOYA BELLA.

To have this charming little Hoya in perfection, it requires plenty of warmth and moisture while growing, good drainage, and a free open soil. The latter should consist of equal parts good fibrous peat, leaf-soil and sand, well mixed together, to which may be added a tolerable portion of clear potsherds, broken small, and a few pieces of charcoal. The pots used should be drained from 1 to 2 inches in depth, according to their size. The peat should be broken up with the hand, but not sifted.

Presuming that young plants are obtained in spring, they should be placed in a stove or pit, where a temperature of from 65 to 70 degrees is kept up. Under such circumstances they will grow freely, and will soon require shifting into larger pots. Shade slightly during bright sunshine, and water when necessary; but with a sufficiently moist atmosphere, and a

moderate use of the syringe on favorable occasions, but little will be required at the roots, heavy drenches of water being prejudicial to them. As they progress, the leading shoots should be stopped, in order to induce the formation of more numerous branches, which should be spread out and arranged so as to make a neat specimen. If by the middle or end of June the plants are still growing freely, another shift may be given and the same temperature maintained. When they begin to cease growing, which they should be encouraged to do early in autumn, they should be placed on a shelf near the glass to ripen their wood, and a drier atmosphere should be maintained; they may be kept here during winter, provided the temperature is not higher than 55 or 60 degrees; during that season just sufficient water will be required to preserve the foliage in health.

Early in January, or a little later, as may be convenient, the plants should be cleaned, top-dressed, and placed in a growing temperature as before directed, keeping the atmosphere moist, to induce them to break freely. When they have broken well, if large plants are desired, they may be shifted and grown on; but if intended for flowering, it is preferable to defer shifting, as they bloom most freely when slightly pot-bound. The flower buds will make their appearance as the young shoots progress; and, when commencing to expand, a drier atmosphere, and a somewhat cooler temperature will prolong the duration of the flowers. If well attended to during the summer, the wood will be perfectly ripened by the time the flowering is over, and the plants may be wintered as before. If it is necessary to prune them back it should be done a few weeks before starting them, in order to allow time for the wounds to heal over before growth has commenced.

This plant has a fine effect, either planted out or plunged in a basket of moss, and suspended from the roof of a stove or Orchid house. In this way the flowers show themselves to advantage; and if the plants are kept moist while growing, and otherwise well treated, they will last for several years in perfection.

Cuttings made of the young shoots root freely: insert them in sand, cover with a bell glass, and place them in a temperature of 70 degrees, where there is a gentle bottom heat. When rooted, pot them off singly into two or three-inch pots, and place them in a close warm situation; if rooted early they will make strong plants by autumn. ALPHA. [*Gard. Chron.*

THE GENUS POLYGALA.

Some of the gayest and most useful inmates of greenhouses belong to this genus. And the best varieties are plants of easy culture, which, with even ordinary care, soon form fine large symmetrical bushes, bloom most profusely, and remain longer in beauty than most hardwooded plants. But, although all the more desirable varieties are of free growth, persons commencing their culture should be careful to procure good healthy promising young plants, avoiding pot-bound leggy things, which are very unfit for beginners. If plants are procured at once, the best situation for them for the next two months will be near the glass in a cold pit or frame, where they can be secured from bright sunshine, and afforded a free circulation of air. If they appear to require more pot room, this should be seen to at once, in order to get them well established in their pots before winter; and it will be advisable to give a very large shift after this season. Attention should be paid to having the ball in a nice, moist healthy state; for no plant should be repotted except this is the case, and particularly hardwooded plants. For soil, use good strong rich fibry peat, with a small proportion of rich mellow turfy loam, well intermixed with plenty of sharp silver sand, and some lumpy bits of charcoal, or clean small potsherds to keep it open, and permeable to water and insure good drainage. If stopping is required, this should be done as soon after potting, as the roots appear to have taken to the fresh soil; or in the case of plants that do not require repotting, it should be done at once, and the shoots should be kept nicely tied out, in order to induce a bushy habit of growth.

The best situation for the plants in winter is near the glass in the greenhouse, where they will have all the light possible, and a free circulation of air on every favorable opportunity. At that season, water must be administered very carefully, never giving any until it is absolutely wanted, and then sufficient to thoroughly moisten the ball. Turn the plants occasionally, to prevent their getting one-sided through the shoots turning to the sun, and give the leaves a gentle washing with the syringe occasonally, to clear them of dust, &c.; but do this on a bright morning, so as to avoid damp. About the middle of March, the plants should be cut back, if necessary, to secure a sufficiently close growth—for they will be too small to be of any service for flowering—and placed in the warmest end of the house, or removed to where the night temperature may average about 45°, syringed over-head on bright days, and kept rather moist. Here they will soon push their buds and start into free growth, and when this is the case, the roots

should be examined, giving a liberal shift, if the ball is covered with healthy roots. Afford the same careful attention after repotting as recommended above, keeping the atmosphere moist, and watering sparingly, until the roots strike into the fresh soil. Perhaps the best directions that can be given as to temperature during spring, would be to regulate it according to the amount of light, keeping the plants growing as freely as can be done without inducing weakly growth; but by all means avoid this, which would spoil the specimens. Remove to a cold frame as soon as the weather becomes at all favorable, and treat them during the summer as recommended for last season, remembering that minute attention and careful management is the only way of securing handsome specimens. If a second shift should be required in course of the summer, see to this as early as can properly be done, in order to have the pots pretty full of roots; also discontinue shading early in autumn, and expose the plants freely to light and air, so as to get the young wood rather firm before winter.

The same treatment as recommended for last winter, will be suitable again, but if the plants are considered sufficiently large for flowering, they should be kept in a cool, airy part of the greenhouse until they come into bloom, when they may be removed to the conservatory, where, if they are shaded from bright sunshine, they will last some two months in beauty.

CULTOR. [*In Turner's Florist.*]

QUERIES FOR BOTANISTS.

Wm. Harper, Esq., a gentleman of this city, has growing in his garden two apricot trees, which are essentially different in their sexual characters. Their history, as near as I can learn, is as follows: Some ten years since, John Harper, Esq., son of Mr. H., was in Virginia, and was presented with some large and delicious apricots, and brought two of the pits home and gave them to his sister (a young lady gardener); she planted them in a box of earth in the cellar, and in the following spring they sprouted and were planted where they now grow; since then they have never been transplanted, grafted or pruned. The trees are now about eighteen feet tall with wide spreading heads and stand so close that some of their branches mix; they bloom profusely at the same time every spring. One has borne a plentiful crop of fruit each for the last six years' the other has never set a fruit, and although its stamens and pistils appear large, they are without pollen, stigma and germen. Now one or other of these trees refutes the doctrine lately

promulgated, "all varieties of plants when left to themselves take the sexual characters of their originals." The next query is, would scions or buds of the barren tree, worked on other stocks, produce fruit. Mr. Harper will no doubt part with a few twigs for experiment, so that those who believe in sexual mutation can convince themselves of the wisdom or folly of their theory.

SAMBUCUS.

Philadelphia, July 14th, 1854. [*In Farm Jour.*

Whether Mr. *Sambucus* understood what he meant by the above paragaaph we do not know, but one thing we are sure of, namely, that we don't think he did. We happened to have had presented to us, at the instance of Mr. *Sambucus*, a few shoots of each tree when in flower. One, the fruitful one, with all its parts perfect, having pistils, and stamens bearing pollen; the other, the more vigorous tree, with larger flowers, pistils apparently perfect, both in style and stigma, stamens with perfect anthers but bearing no pollen. The cause of its unfruitfulness is that it expends all its energy in making wood, it has more leaves and is altogether a stronger tree than the other. Now, if Mr. *Sambucus* will take the trouble to *root-prune* this tree, we have no doubt, nor do we think has he, that it will bear quite as many and as large apricots as the other. According to the paragaraph above quoted, "either of the trees is to refute the doctrine lately promulgated," &c., now would Mr. *Sambucus* insinuate that either of these trees is pistillate or staminate and unchangeably so? On the contrary, like the rest of the Rose family, to which the Apricot as well as the Strawberry belongs, they have perfect flowers. The gentleman seems to think he has gotten "a case" but it won't do this time. Try again, Mr. *Sambucus*. Get an unchangeably pistillate Rose or Pear or Apple tree.

PERENNIAL DELPHINIUMS, AND THEIR VARIETIES.

This charming herbaceous plant, with its numerous varieties, now amounting to about sixty named kinds, is one of the best that can be used for beautifying the flower-garden. The length of time they are in bloom, combined with their varied and brilliant colors, makes them very desirable. The dwarf varieties, when grown in a bed, have the best possible effect, and when mixed with other plants in the beds or borders, they have a very interesting appearance. The taller perennial varieties grow from six to eight or nine feet in height, and are very suitable for planting at the back

part of a border bounding a flower-garden. They thrive and flower well in any rich mould. The varieties which are best suited for bedding are—

HENDERSONII; color, deep azure blue, with a white eye, growing from two to three feet high. It may be regarded as the prettiest of the tribe yet in cultivation, and flowers from June to October very profusely. If planted about twenty inches apart, they will, in the season, spread and form one mass of their beautiful bloom.

QUADRICOLOR is another dwarf variety, the flower being, as its name implies, a mixture of colors, viz., a light blue, lavender, and a shading of light rose; it is a free-blooming, fine variety for bedding. Its height is from one to two feet.

WHEELERI is a beautiful light blue, free-blooming and handsome. It is a medium-sized double variety, of the *bee* kind.

AZUREA GRANDIFLORA is another *light* blue Delphinium of the *bee* kind; it flowers very freely, and has a nice effect.

GRANDIFLORA MAXIMA is a *dark* blue; a large flowering variety, suitable for borders.

BEAUTY OF CHARONNE is a good flower, resembling *Hendersonii*, but the flower is smaller, and its habit is not so free-flowering.

MAGNIFICUM, a capital variety for a bed; color, azure blue, with a light eye; habit free-blooming, with medium-sized flowers; grows from two to three feet high.

AZUREUM PLENUM, a pretty, light-blue double flower, and a free bloomer.

BARLOWII is a double flower, of a dark blue color; a good, free-blooming variety for the border.

In addition to the above, there is a great variety of the *tall*-growing section, which deserve attention; they should be grown in every garden, however small. They are easily increased by division of the roots. When a plant attains a large size, it may be taken up, parted, and replanted immediately, or kept in pots in a cool frame during winter, and turned out into the borders or beds where they are to flower the ensuing season. A circular bed, with the tallest growing in the centre, and gradually declining to the dwarfest, for the outer row has a singularly pretty appearance, and will be ornamental throughout the summer.—*Flor. Cabinet.*

Now that the progressive transformations which cause the production of the corn WHEAT from the grass ÆGILOPS have become familiar to the well informed cultivator, everything which throws light upon the tendencies among

cereals to change their accustomed condition acquires interest. For that reason we produce in the accompanying woodcut a representation of a monstrous Wheat, remarked last year by Professor HENSLOW in one of his village allotments. It will be seen that at each of the places marked *a a a* there is an additional body, having a very distinct reflexed position; and that at *b* a similar though different appearance occurs. Upon examining the structures carefully, we find that at *a a a* there is, in addition to the usual spikelet, a lateral one, consisting of imperfect chaffs (*glumes* and *paleæ*) containing from three to four florets. This additional spikelet occupies the same position as one regular lateral one-flowered spikelets of Barley. At *b* there is an additional chaff or glume, reflexed as before, but imperfect, and merely indicating a tendency in other parts of the ear to assume the peculiar condition of *a a a*.

We entertain little doubt that, in this example, we have before us the elements of that greater change which ultimately resulted in the production of Egyptian Wheat out of the common Revett or *Triticum durum;* and if this be so, we have evidence that the common red or white Wheats may also be expected to branch in the ear, and thus acquire a degree of productiveness at present unknown among them.

Now, that all eyes are upon Wheat fields, we, as botanists, would direct attention to this fact, and suggest the propriety of putting aside any ears in the condition of that now represented, with a view to sowing the corn apart, for the sake of the possibilty that the tendency to branch may be strengthened and perpetuated. It is entirely consistent with all we know of the nature of plants that this should occur; not, indeed, in every seedling obtained from a branching ear, but in some one of them. Such a case should again be reserved and sown apart; and if but one case of a branched ear should occur in the third generation, the habit of branching may be regarded as fixed; while the degree of it may be expected to go at least as far as in the Egyptian Wheat.

This is a point to which the attention of allotment-holders should be directed. It is even worth consideration whether it might not be desirable to sharpen the perception of allottees by offering some small rewards for each branched ear that should be brought in.—*Gard. Chron.*

THE State Agricultural Society's Fair will be held in this city on the 26th, 27th, 28th and 29th days of September. The location of ground is good, being on that part of the property purchased from Mr. Powell by the Pennsylvania Railroad Company, lying between the railroad and the river. It is already enclosed, and the several buildings are in course of erection. There will be a plowing match on the 29th, at 9 A. M., and the address will be delivered at 1 P. M. of the same day. We annex that part of the regulations which relates to visitors.

Any person can become a member of the Society for one year, by the payment of one dollar into its treasury. All the members of the Society whose dues are paid, and all who shall become members previous to or at the Fair, will be furnished with cards of membership, which will admit the person to the Exhibition at all times during the continuance of the Fair, and entitle the holder thereof to all the privileges of a member until the next annual Exhibition.

Cards of membership will be furnished by the Secretary, at his office in Philadelphia, at any time after the first of September, and by the Treasurer at his office, on the Fair grounds, during the Exhibition.

Single ticket for one admittance, price 25 cents, will be ready at the Treasurer's office on the grounds, on Thursday morning, the 28th of September.

Members will be allowed to enter the grounds in carriages with their families; but no hacks or other public conveyances will be permitted to enter.

Members of the Society, Exhibitors, and the Viewing Committees or Judges alone, will be admitted the first day of the Exhibition.

THE GARDENER'S MAGAZINE, edited by W. S. King, published monthly at Boston, 32 pp., $1 a year. This is a new periodical, devoted to Horticulture, the first number of which appeared in May. It is made up principally from the Practical Farmer, a weekly, edited by the same gentleman. We commend it to the attention of our readers.

PENNSYLVANIA STATE FAIR.

At the meeting of the Horticultural Society, held on Tuesday evening August 15, the Committee to whom had been referred the subject of holding an autumnal exhibition under the auspices of the Society, as usual, reported a recommendation to hold no separate fair this season, but instead therof to solicit all contributors to send their horticultural products to the great Pennsylvania State Fair, which will be held at Powelton, in the twenty-fourth Ward, commencing on the 26th of September. This recomendation, adopted after mature deliberation by the Committee, was agreed to by the Society, and a Committee of twelve members directed to be appointed to assist a similar Committee from the State Agricultural Society in conducting the Horticultural department of that grand display. This is a most gratifying movement, and shows that the members of the Horticultural Society have properly considered the matter, and are fully alive to the benefits likely to accrue to Philadelphia from the approaching exhibition. We are confident now, that the department of flowers and shrubbery will be among the most attractive features of the Fair. With such facilities for a display as those afforded by our numerous private gardens and conservatories, and the extensive establishments of our professional florists, aided by the knowledge and energy of the members of the Horticultural Society, we think there need be no fear but there will be such an exposition of the floral creation as will long be remembered. We know not whether any action has been taken by the Gardeners' Society, but as they seem to be in some sort involved in the action of the Horticultural organization, we trust that they will come forward in a proper spirit to do their share of the work.

We have been informed that many of the members of the State Poultry Society are exerting themselves in a praiseworthy manner to secure such a representation of their department as will do them credit. They have also taken the trouble to visit some members of the Bird Fancier's Society, to interest them in the movement, and with reasonable success. Though the exhibition occurs at a very unfortunate season for the display of birds, yet not a few of the professional bird fanciers have determined to do their best, very properly believing that thereby they will be advancing their own interests. Many hundreds of persons who will visit the State Fair from the interior, have probably never seen an array of singing birds, such as these men can set forth, and we should not feel surprised to see large numbers of these feathered songsters sold to the residents of the pleasant villages and towns scattered through the State. As regards the exhibition of poultry, we

have reason to believe that it will be equally fine; and, if so, it will attract a great deal of attention.

We thus find that the Philadelphia Agricultural Society, the Horticultural, the Poultry and Bird Fancier's Societies, are now actively co-operating in the common effort to render the State Fair worthy of the capabilities and reputation of the city. As regards the Franklin Institute, we have as yet been informed of no definite action by that organization in reference to its fall exhibition, but as its members are generally sensible, public spirited, and much interested in the welfare of Philadelphia, we feel assured they too will wisely resolve to make their usual display in conjunction with the State Agricultual Society. So thinking, we look confidently for their energetic assistance in getting up a magnificent industrial demonstration.—*N. Amer.*

ON THE MOTION AND COMPOSITION OF SAP IN PLANTS,

BY WALTER ELDER.

Sap is the vital essence of plants, the essential agent of vegetation, and the active agent of growth. It is present in a dormant state in the seed, the dry bulb, and in deciduous plants in winter, and only needs the combination of heat and moisture to set it in motion.

Its composition is very different in different plants, which is perceptible in their earliness and lateness, their tenderness and hardiness, their ligneous or herbaceous natures, and in the different degrees of heat and moisture at which vegetation commences in different species. We see some luxuriating in swamps and others flourishing on mountain tops; some thriving in the sunshine, others delighting in the shade; some evergreen, others deciduous; some vegetating three fourths, others dormant two-thirds of the year. Some are consumed by "Dry rot" produced by moisture, others suffer from the same disease produced by dryness.

Its motion is also different in different plants; this is visible in the rapidity or slowness of growth. The too common expressions the "rise of sap" in spring, and the "return of sap" in the fall have created many erroneous impressions especially in young minds. I have met with men who made great pretensions to arboreal knowledge, say with much confidence that the "whole vital essence or life of the trees was in the roots during winter."

Now the least consideration would convince any one that such is an error. The truth is, that the tree is more densely filled with sap in winter, than at

any other time of the year, but then it is solid and stationary, and contains the vital essence of another year's growth, and on the return of warm weather in spring the first degree of heat affects it, which appears in the swelling buds; and, shortly afterwards we find that in cutting a twig liquefaction has taken place, by the oozing out of the sap at the wounds, which is termed bleeding.

But we are not to suppose that the whole sap of the tree is already in motion; for this reason. In this case, heat is the mover and it cannot penetrate so quickly into the stem as into the small branches, owing to its greater solidity and thickness. So that extension and liquefaction or vegetation begins first in the extremities and goes on gradually until the whole plant becomes in a state of vegetation. The motion of the sap then becomes very strong and rapid, which bursts the bud, expands the foliage, and forces out new shoots. But if a sudden cold spell should come the leaves and young shoots may be destroyed or injured, but not the branches stem or roots as they are more impenetrable.

It has been supposed that the sap of evergreens does not become solid and stationary like that of deciduous trees; if it does not it certainly becomes so dense in winter as to put the plants into a partial state of rest, and extension and liquefaction appear as strong in them in spring as it does in many deciduous trees. It is the composition of the sap which causes some deciduous trees to be earlier clothed with foliage than others, they are more easily affected by heat than others. We observe the first effect of cold in the changed color of the leaves in the fall; this goes on gradually the leaves drop and in time the whole plant appears in a state of rest.

But we are not to suppose that the whole tree is matured or in a state of rest as soon as the leaves fall; the sap is still in motion, maturing the wood, and densely filling the veins with vital essence, which is to give vigor to the growth the coming spring; it gradually becomes solid and stationary, first in the branches, next in the stem, lastly in the roots. But it is to be observed that young trees, shrubbery, vines, &c. go more immediately into a a state of rest after the fall of the leaves, than large trees do, because they are more slender. Indeed, young trees in a nursery may be said to ripen their wood before the fall of the leaves, on account of the little nourishment they get from the soil after midsummer, being crowded in so small a space; but it must be midwinter, before large trees, especially oaks, are fully matured.

When a plant of any kind becomes partly matured early in the fall by drought and again awakened by heavy rains and warm weather, the vitality

of the sap is weakened by the moisture taken up by the roots, which sometimes destroys the constitution of the plants, and renders useless the fruit the plant is then bearing; hence the cause of potato-rot, grape-rot, bad-keeping apples, pears, &c., the plants take the "dry rot,' the fruit becomes an unsavorymass, and becomes decomposed; when it reaches this point, nothing can stay the malady.

But it seems to me that some precautions taken in time would prevent the malady; underdraining would carry off any superabundance of moisture, and absorbents mixed in the soil might prevent the trees taking up too much, as they would take it up and give it out gradually to the plants. Ashes, charcoal, guano, lime, marl, plaster, poudrette, salt, tan-bark, barnyard manure, &c., are all absorbents.

Whatever weakens or destroys the sap hurts the constitution of the plant; too much moisture weakens the sap, causes an over luxuriant growth, makes it too succulent and thus causes it to be easily blighted, either by heat, cold or drought. Whereas, plants of slow growth are firmer, hardier, better matured aud seldom affected with any disease, so that those who grow plants quickly lose them quickly, as they destroy the natural composition of the sap.

UNITED STATES AGRICULTURAL SOCIETY.

At a meeting of the Executive Committee of the United States Agricultural Society, held in the city of Washington, in February last, it was resolved that the Society would hold no Exhibition in any State having a State Agricultural Society, without the assent of the officers or of the Executive Committee of such Society.

The citizens of Springfield, Ohio, having requested this Society to hold an Exhibition of Cattle at that place, during the current year, and generously subscribed about ten thousand dollars to defray all the expenses of the same, and to guarantee the Society against loss; and the Executive Committee of the Ohio Agricultural Society uniting in the request, the Executive Committee of this Society have concluded to hold a National Show of Cattle, open to general competition, without sectional limit, on the 25th, 26th, and 27th days of October next, at Springfield, in the State of Ohio.

The friends of Agriculture in all the States of the American Union, and in the neighboring provinces of Canada, are invited to co-operate with us,

so that this Exhibition may be the more extensively useful, and be alike creditable to the generous citizens of Springfield, with whom it originated, to the contributors and visitors who sustain it, and to the United States Agricultural Society, who are so deeply interested in its success.

In consequence of the holding of this Show of Cattle, the contemplated Exhibition of Horses, at Springfield, Mass., and the Show of Sheep, in Vermont, will be omitted.

The Journal of the Society, which the Executive Committee have concluded to issue once in each year, (four numbers in one,) will appear in January next, and will contain the transactions of the Society at its last annual meeting, the lectures and addresses delivered at that time, a full and faithful account of the Springfield Show, with other valuable papers, by eminent members. This volume will be forwarded to all members who have paid their annual assessments for the year 1854.

MARSHALL P. WILDER, *President.*

WILLIAM S. KING, *Secretary.*
Boston, August 1, 1854.

THE AMERICAN WINE GROWERS' ASSOCIATON

Met at the vineyard of R. Buchanan, Clifton, August 26, 1854. After surveying the vineyards and orchards, which evidence the great care of the proprietor, the Company assembled in the very neat wine house, and examined the superior press and arrangements.

After reading the minutes, the Treasurer read the report of the state of the funds.

The following gentlemen were elected members: T. V. Peticolas, F. Schneicke, Dr. A. Howe, P. Bogen, F. Desenrene, Dr. J. J. Arons, Abr. E. Mother and E. K. Woodward.

The Committee, through J. P. Foote, reported the result of the examination of wines, as follows:

To P. Rehfuss, Esq., President of the American Wine Growers' Association:

Report of Committee, appointed to examine the specimens presented for the premiums to be awarded for the best Catawba Wines of the vintage of 1853.

The meeting of the Committee for the performance of the duty assigned

them, was held on Saturday, 19th inst., at the house of Mr. A. W. Frank. Thirty-eight samples of wine, distinguished by a number on each bottle, were offered for competition, and a sealed paper containing the names of the proprietors of the different samples was deposited with the Secretary, and not opened until the award of the premiums had been made.

The Committee in making their examination, divided the samples into parcels of five, from each of which the best specimens were chosen, and from these after a second examination, the specimens adjudged to be entitled to the premiums, were selected.

In forming their judgment, the Committee paid special attention to the aroma (bouquet)—that delicate and very sensitive quality, which constitutes one of the excellencies of the still wines of this region. The slightest inattention to neatness and to the exclusion of the defective grapes, or of any foreign substance whatever, in the manufacture of the wine, will have an unfavorable influence on this important characteristic. Even the addition of sugar, in small quantities, to the must, for the purpose of increasing the strength, should be avoided, since its unfavorable influence on the aroma, injures the quality of the wine more than the increased strength can atone for—delicacy of flavor, and not strength, being the quality most desirable in our wines.

The taste for wines which, in this country, was originally formed almost exclusively on the coarse, strong, alcoholic wines of Madeira, Spain and Portugal, is beginning to improve, and it is an important duty of this Association to speed the progress of this improvement, until the pure, light, delicate and wholesome wines of our own country, with that of France and Germany, shall exclude entirely the intoxicating wines, and liquors bearing their names, of domestic manufacture, and the remembrance of their use and influence, be among the mournful memories of past misfortunes and errors. The cultivation of a refined and discriminating taste in wines, and providing such wines as satisfy such taste, will give a support to the cause of temperance which neither compulsory laws nor voluntarily associations can yield, for intemperance, like other crimes, cannot be exterminated by laws, but, like them, must be subdued by correcting the taste, and increasing the knowledge of mankind, so that they may know the good and prefer it to the evil.

It is a duty of this and all similar associations, to continue their requirements of all the makers of wines within their influence, that no foreign substance of any kind should be permitted to mingle with the juice of the grape, and that perfect purity should be, them with *sine qua non*. By a proper at-

tention to their duties, they may assist in checking the conversion of many million bushels of the cereal grains into a material for brutalizing and demonizing, instead of nourishing and sustaining their fellow citizens; and by inspiring good taste in our department, correct bad habits in many.

The specimens referred to in this report were, with the exception of two, which were supposed to have had sugar added to the must, and two injured by decaying fruit or some other mark of inattention, of very superior quality, and indicated that the progress of Young America, is marked and remarkable in this department of its products, as in most others.

Several of the specimens besides those to which premiums were awarded, were deserving of premiums, and the committee regretted that it was not in their power to award them. Their judgment was given in favor of No. 34 as the best, No. 24 as second, and No. 13 as third best, and on opening the seal list, it was found that No. 34 belonged to G. & P. Bogen; No. 24 belonged to Frederick Zinzback; No. 13 belonged to H. H. Duhme.

Respectfully submitted,

JOHN P. FOOTE, —STANISLAUS,
S. MOSHER, JOHN G. ANTHONY,
JULIUS BRACE, M. KELLY,

Committee.

Mr. Buchanan presented, in the name of Mr. Myers, of Philadelphia, a piece of music called the Catawba Waltz. On motion, the thanks of the Society were voted to the donor.

Mr. Rehfuss explained that the Committee had executed their task with fidelity, and stated how the trial had been conducted.

The remaining premium for "other wines" and for Sparkling, were ordered to be awarded at the next regular meeting, September 23, when the Society will meet, at the house of L. Rehfuss.

Mr. Buchanan asked further time to confer and report upon the question of pruning seedling grapes.

STATE OF THE CROP.—Members generally stated that the prospects of a wine crop were very discouraging.

The table spread in the wine house, was laden with beautiful fruits and other delicacies, to which the fine samples of wine added a piquancy that was highly appreciated. On motion adjourned.

J. A. WARDER, *Sec'y.*

THE CINCINNATI HORTICULTURAL SOCIETY

Met on Saturday, August 25, 1854, Mr. Ernst in the Chair. The minutes were read, when the Committee appointed to confer with the Academy of Sciences, reported that no arrangement had been effected. On motion, they were discharged.

On motion of Mr. Foote, Jacob Hoffner and James W. Ward, were added to the delegates to the Pennsylvania Horticultual Society, and authorized to present themselves as our delegates to other exhibitions.

Mr. Kelly read a report from the Committee on Arrangements, for the Autumnal Exhibition, setting forth the progress of their labors, which shows that they are possessed of the energy and discretion, necessary to insure the success of this great enterprise. Report accepted.

MEMBERS ELECTED.—Peter Joseph, Esq., of Cumminsville, and F. B. Howells, of Lebanon, Ohio.

On motion, the Council and Committee of Arrangements, were authorized to draw on the Treasurer for one hundred dollars to carry out their efforts.

The Fruit Committee awarded three dollars to M. McWilliams, for two varieties of figs.

Circulars were presented from the *Western Virginia Agricultural Society*, and from the *Kentucky Horticultural Society* which will hold their exhibitions respectively on the 13th, and 18th of September.

Circulars and bills of the Fall Exhibition, were laid on the table. On motion, adjourned.

JOHN A WARDER, *Sec'y.*

EXHIBITED.

Mrs. Brickham—Peaches—Very fine specimens of Columbia, and a large white Free; Grapes, Cigar Box.

A. H. Ernst—Pears—Grosse Calebasse, and Apples from L. Sanders, Kentucky, two varieties, summer fruit; also Plums—Pend's Purple Gage.

Dr. Hempstead, Portsmouth, Ohio—A delicious Grape unknown.

M. McWilliams—Pears—White Doyenne, Stone, Bartlett; Figs, of two varieties. W. S. Harce—Summer Bon Chretien.

Apples—From T. V. Penicolas — Hubbardston, Nonesuch, Minister, Bough, Benoni, Calville, Summer, Pearmain, Pomme Royale, Silver Russet, Ramsdale's Sweet, Wine, Apple, Porter, Codling, Summer Queen, Corse's Indian Prince, Maiden's Blush and three unknown varieties.

Pears—Bartlett, Julienne, Dearborn's Seedling, Stone, Autumn Superb, Echaserie.

Plums—Yellow Gage, Smith's Orleans, Aude ton Plum.

Peaches—Pullen's Early Red, White Heath Free, Crawford's Early, Lemon Cling, Abbott's Late, White Cling, Prince's Rareripe.

C. Pinkenstein, Borsdofer, and a plate of Pears.

George Hill—Italian Pear, believed to be Bartlett, Mr. Ernst stating that the Bartlett was introduced into this neighborhood by J. Garrard, an Italian.

By the Secretary, from R. S. Musgrave, Sulphur Spring, Crawford county, Ohio.—A very handsome apple resembling the Cooper; also, the Trenton Early, from R. W. Steele, of Dayton, which is clearly not the Golden Sweet, as heretofore supposed, and as set forth in Elliott's Fruit Book.

Flowers—A large basket from M. Kelley & Co.—Fine Dahlias, Roses, &c.

Hamburg Grapes—Grown in the open air, by George Graham.

Melons—From W. E. Mears, Mount Washington.—Beautiful specimens of Water and Musk-melons, referred to Mr. Chapman for report.

From the American Agriculturist.

DWARF PEARS.

The horticultural department of your journal which, by-the-by, is an extremely interesting one, is so ably sustained by older and more able pens, that I feel some diffidence about offering every idea that a fifteen-year-old horticulturist can suggest. Yet some things advanced in your late issues, invite and interest the attention of all fruit amateurs. The question has been asked and repeated, "Who knows of pear trees *doing well* on the *quince* stock for twenty years?" I conceive this question calculated to do a certain amount of injury, unless met in an intelligent manner, and with a proper spirit. I am glad, however, the question is asked, as the opportunity is given to introduce a few facts worthy of an extended circulation.

The increasing demand for fruit trees, is no shallow puff; it is a veritable truth. By far the greater proportion of these purchasers know very little about making a judicious selection of plants. Hence the necessity of information safely culled from the experience of others.

Every one knows that the quince root has the reputation of thriving best in a moist, rather heavy soil, as its *favorite* locality. It will *grow* for a while in almost any soil, wet or dry—but will it *thrive*, and how long will it

endure? That is the point. The knowledge of this simple fact is of no avail unless carried rigidly into practice. I think I know of dwarf pears that have borne fruit some ten or twelve years, in a dry sandy soil, but highly fed and cultivated as sandy soils usually require such care. With only ordinary culture, however, I am satisfied they would generally fail much sooner. For such soils I would never recommend dwarfs, but strong seedling standards. No *honest* man will attempt the growth of the pear on *sprouts*, as he will cheat *himself* prodigiously. Modern horticulture has fully proven the fact, that the most healthy and vigorous fruit stocks are those raised from the *seed*.

But to my subject, viz., the duration of the pear worked on the quince. I have already shown them of twelve years' standing on a dry soil, but never very vigorous and thrifty. And I know of them on their favorite soil, viz., moist clay, vigorous, thrifty and prolific; I am not prepared to say twenty years of life is their allotted limit, but I am prepared to say that if they would surely bear no longer than half that time, it would be a satisfactory and profitable investment, since many soils would grow those pears that would be unfit for anything else. Besides, there are well known principles in horticulture, that place the question beyond a doubt. Quince trees are known to attain the age of fifty, and even a hundred years, and pears double that time; and the quince stock, usually used for working dwarfs is a very free grower, exhibiting the most satisfactory evidence of its enduring at least a sufficient number of years to pay the cost. In garden culture the dwarf pear is highly prized as an ornament. Long borders of dwarf pear trees hanging with fruit, is a rich, tempting and beautiful sight.

But we now come to the *main-spring* of the whole affair, the grand secret of success: management and culture proper to secure handsome dwarf pears, the non-observance of which will insure the amateur a complete failure. High culture is essentially necessary for the dwarf pear, and this is so concisely expressed by a contributor to the last Patent Office Report, that I make the brief quotation entire: "Dwarf pears worked upon quinces, have been planted in large numbers about us, and as fine specimens of fruit from them have been exhibited at our State Fair, (N. H.,) as have ever been produced anywhere. The dwarfs are preferred to standards for garden culture, because they occupy but little space. Besides, they come into bearing much sooner than the standards, usually in two or three years from transplanting, and some have borne perfect fruit *the same year* they were imported from France. Pears upon the quince require high cultivation, because the quince root must always remain small, and cannot wander far for nour-

ishment. The farmers of New-Hampshire, (he might have said the United States,) are by no means accustomed to the thorough cultivation which dwarf pears require, and I have no doubt that an orchard of them, managed as even the best of our apple orchards are, would be worthless. (Can't endorse the last word fully.) Indeed pears of all kinds, standards as well as dwarfs, require a deeper and richer soil, and more careful cultivation than the apple."

I conclude from the above reasoning, therefore, that dwarf pears are valuable, are worth all they cost, and by a judicious selection of varieties, are a profitable and satisfactory investment; that in their favorite soil they will last more than twenty years, but if they give out bearing at the age of ten years even, they would fully quit the cost.

W. D.

THIS NUMBER.

We have used the scissors very extensively in getting out this number, but we often find many things in foreign magazines of as great interest to our readers, as anything written here could be. Our contributors have not favored us much in the last week, so that what we could extract has been very useful. We wish that our subscribers would extract what they owe us from their pockets, and send it to us by mail, or otherwise. Since the issue of our last number we have received exactly one-twenty-sixth of what was due. This is generous in our friends. At that rate we would be paid in full, *after a while*. Considering that we give our subscribers the best plates and the best paper of any magazine published in the United States, we think that at least we should be promptly paid the small sum asked for the annual subscription.

The Annual Session of the Pomological Society takes place in Boston, commencing on the 13th of this month. There will, no doubt, be a large gathering of fruit-growers and fruit-knowers. We are sorry that there is no chance for our appearance there. No doubt the merits of many fruits will be settled, including the Cincinnati strawberries and the Hovey cherry and Boston pear. We hope that those who have no fruits to recommend will see that fair play is had in each case. The disappointment in our case consists in our not having the opportunity of meeting several pleasant correspondents and fellow-editors, and of visiting other friends on the route. Nevertheless we shall, no doubt, see some of them at our great State Fair later in the month.

The Praire Farmer.—We have just received the August number of this monthly, which, we must say, is the very best farmer's paper we exchange with. With two such men as J. A. Wight and Dr. Kennicott, how could it be otherwise? We can sympathize with them in the cause of their backwardness in issuing their paper, it being somewhat the same in both cases—inability to get up steam. In their case the fault lay in the engine—in ours, in our subscribers. The Farmer is closely printed in 8vo, with double columns, has about forty pages to a number; is not afraid when it has anything to say, to say it; and moreover, to "say it," as Emerson says, "in hard words." Those who subscribe to this paper get a great deal for one dollar, and those who do not, should do so as soon as possible. It is published by Messrs. Wright and Wight, at Chicago, Ill.

NURSERYMEN'S CATALOGUES.

We have neglected to acknowledge the receipt of several catalogues of Nurserymen. We are often called upon by subscribers at a distance for catalogues, and are always willing to procure them. We have catalogues from Messrs. Hugh Low & Co., Louis Van Houtte, Buist, Dreer, Rauch, Scott, and of nearly all those who advertise in our magazine.

The Iowa Farmer, published at Burlington, Iowa, is a neatly gotten up, well written monthly of thirty-two pages, which is gaining with every number. We should think it excellent authority in stock raising, which is now one of the most important branches of industry in the West. It also contains useful articles on horticulture, and occasionally very glowing ones on our western Flora. The editors are Messrs. Grimes and Tallant. The price is one dollar per annum.

OUR NEXT NUMBER

Will be ready in a few days after the issue of this. In order to publish the succeeding numbers rapidly, we want all the communications we can get. We hope, therefore, that our friends will send us as much interesting matter as they can.

HOO SUNG.

Mr. Darlington:—Under the above name I have had in cultivation, for a number of years, a vegetable which I consider worthy of being generally cultivated. It was introduced originally from China, and through the kindness of a friend in Illinois, (Dr. Kennicott,) I first received the seed. It was represented to be a delicious substitute for asparagus, but not knowing the part used as such, I have not, until this season, fully discovered its value. It is a species of lettuce, and while young used in the same way, but its greatest value consists (at least such will be the opinion of all lovers of asparagus,) in being an admirable substitute for that most excellent vegetable when the plants are shooting up, and before it comes into flower; the stems being very tender, and when from a quarter to half an inch in diameter, and eighteen inches to two feet high, may be cut into lengths and cooked in the same manner as asparagus. I will not say that it cannot be distinguished from that vegetable, but I do not consider it quite as delicious, and on the same space of ground where a dozen dishes of asparagus can be cut after three or four years of patient and high cultivation, *one hundred* may be cut of the *Hoo Sung* in *three or four weeks!* I have a small patch going to seed, which I will distribute to any who wish to make a trial of it, by letting me know their wishes. A pre-paid letter with a stamp, or pre-paid envelope enclosed, will insure a return of the seed.

J. B. Garber.

[*In Farm Journal.*

WATERING BY TRENCHING AND DRAINING.

That watering is a very important element in the economy of vegetation, may be readily conceived when it is known to form upwards of one-half of all green vegetable matter, and serves as a medium for the conveyance of all their food. All mineral ingredients that enter into the system of plants, must be in a state of solution, or so minutely divided as to be carried along with water. Even the gaseous elements that enter by the roots, are introduced with water, since it is supposed that they cannot enter in the æriform state.

In the cultivation of the soil, the most important inquiry is, its relation to water. It is waste both of time and money to attempt improvements on wet lands until they are drained. I am aware that draining is not generally recognized as an indispensable auxiliary to successful cultivation, but it is,

nevertheless, a fact that soils, even of a dry nature, will support a more luxuriant vegetation after being undermined with drains, than they did before. The reason is simply this: All soils have their respective absorbing properties, and if the surplus which is not retained by absorption, is not carried off by drains, it becomes injurious. Air is admitted, the soil is rendered more porous, water percolates freely into it, the air holds moisture in suspension, and when the surface supply fails, this suspended moisture is again brought up by capillary attraction, a principle in cultivation which is not generally known.

But by far the best preventive of the evil effects of severe drought, is *deep cultivation.* Loosen the soil, no matter how deep, so that the best soil is kept on the surface. *Trenching* is undoubtedly the most thorough process of deepening soil. The advantages derived from it are various. The absorbing capabilities of the earth are increased, and a large supply of moisture is thus retained. The roots of plants can extend into a medium where they are exempt from the extremes of drought and heat, and obtain a more regular supply of nourishment, being neither so likely to suffer in wet, or burned up in dry weather; as in the former case the surplus passes freely down, and in the latter is drawn up by capillary attraction, more especially where a judicious system of surface stirring is persevered in, preventing rapid surface evaporation.

In addition to the supply of moisture thus secured, trenching, when properly performed, transposes and disintegrates the soil. The surface that has been exhausted by continual cropping, is replaced by a portion of sub-soil, enriched with the nutritive matters that have naturally sunk and been washed down with rains from the surface, and carried beyond the reach of roots; the manures applied are more freely incorporated with the soil, and their action becomes more regular and uniform, and more directly available for the purposes of vegetable growth.

Artificial waterings are often misapplied; for instance, it is no uncommon occurrence to see a small basin formed around the stem of a large tree, into which a few gallons of water are poured daily. This is all but useless, since the absorbing and feeding points of roots form a circle at a considerable distance from the stem, consquently this water cannot reach them. Newly planted trees are also frequently killed through kindness in this respect. A tree with mutilated roots and scanty growth of leaves, requires very little water. Mulching over the roots with a covering of tan bark, manure, &c., is a more likely expedient than a direct application of water, which cools the soil and retards growth.

Soil that is properly ærated, deeply trenched, and judiciously manured, will support a luxuriant growth, no matter how long a dry spell we may have, more especially if the surface is kept loose and open, to prevent, in some degree, evaporation of moisture, and radiation of heat.

WM. SAUNDERS.

[*In Germantown Telegraph.*

AËRATION AND VENTILATION.

There are many who will scarcely give themselves the trouble to inquire in what respect aëration differs from ventilation, and in consequence of not doing so, regard the two as synonymous. Indeed, I may almost say, this is generally the case, although on a little reflection it must be evident they are not identical, as was shown when they were formerly noticed in the *Gardeners' Chronicle.* In the volume for 1845, p. 267, aëration is defined as "the art of keeping the atmosphere of a forcing house in motion by currents of warmed fresh air," whilst ventilation is stated to mean "the process of letting the external air at once into the forcing house." This is no fine drawn distinction, but a very important difference which every cultivator ought to bear in mind, especially when it is considered that it is mainly owing to the power they possess of regulating the atmosphere of their forcing houses in a proper manner, and at the time required, that their success is to be attributed. The reason why aëration is advantageous, has been so clearly pointed out and explained in the article to which I have just referred, that I trust I shall be excused for bringing it again under the notice of those who are likely to profit by its study and perusal. It is there stated that—"A man's reason must tell him that a plant condemned to pass its life in a still atmosphere, is like nothing so much as a criminal set fast in an everlasting pillory. In order to secure motion in the vegetable kingdom, currents of air are made to do the work of the muscles, limbs and volition of animals. It is not at all improbable that, in addition to the mechanical effect of motion in assisting the propulsion of the sap, it may be important that the stratum of air in contact with the leaves of plants should be incessantly shifted, in order to enable them to procure an adequate supply of food; for we find that water in motion feeds them better than that which is stagnant. Leaves are continually abstracting from the air the very minute quantities of carbonic acid which it contains. When the air moves quickly over the surface, fresh supplies of that food are incessantly presented to it, and the operation of abstraction may be facilitated; while, on the contrary, if the air is stagnant, the absorption of carbonic acid may be much slower. In an absolutely still air, perspiration will be reduced to its minimum, and it will increase within certain limits, in proportion to the quickness with which the air sweeps over it. The motion of the air being thus favorable to the two great operations of feeding and perspiring, we shall find it is equally needed day and night, for perspiration goes on principally during daylight, and feeding in the hours of darkness. A good system of aëration must then be constantly in action." (*Gardeners' Chronicle*, volume 1845, page 267.)

With the view of effecting this, a variety of plans have been devised from time to time, which, to a certain extent, have answered the purpose; but I think it will be admitted that a great deal yet remains to be done before it can be said that a proper system of aëration has been perfected. At present it is a desideratum, and the oftener the subject is discussed the more likely are we to discover the path that shall lead us to the object which has so long evaded our pursuit.

Some years ago a correspondent suggested that a small machine, made on the principle of a winnowing-fan, might be employed for the purpose of ventilating hot-houses. The farmer, it was said, obtained a very powerful current of air in a small compass by such means; and the gardener, it was thought, might obtain the same advantages by adopting a somewhat similar plan for his forcing-houses. The machine might be so constructed as to be wound up like a clock, when its gradual action would produce a gentle and continuous breeze; and, by turning a winch or handle, the degree of wind might be increased to any extent desired. Such an apparatus, I find, was lately made the subject of a patent. It is known as Haig's pneumatic engine, and is stated to be admirably adapted for the complete ventilation of houses, churches, and public buildings of every description; the lower decks and holds of ships, and the engine-rooms and stoke-holes of steam vessels. It is now in use on board of her Majesty's ships Asia, Prince Regent, Duke of Wellington, and several others; and has been fitted up by order of the emigration commissioners on board the Calabar, bound to Port Philip. Some idea of its power may be formed from the fact that in a trial that was made of it at Messrs. Hoare & Co.'s Brewery, East Smithfield, one of their largest vats (which holds about 1200 barrels) was emptied from carbonic acid gas in the space of 50 minutes, so that a man went to the bottom of it in perfect safety.

Now, it appears to me that a small machine which can exhaust the air in the manner just described, might, by a little ingenuity, be so contrived as to produce a circulation of air in our hot-houses at a time when it would be unsafe to ventilate, and I think it not unlikely that after we have become more alive to the advantages which vegetation derives from a circulation of heated fresh air, some such machine as the one I have noticed will be looked upon as a necessary appendage to our pits and early forcing-houses. At present Haig's invention may be considered a move in the right direction, and as it is capable of being easily fitted to hot-houses or pits at a trifling expense, I trust the preceding remarks may induce some of our leading horticulturalists to give it a fair trial, and favor us with the results.

W. B. B.

[*In Gardeners' Chronicle.*

THE ROSE.

BY JOHN A. KENNICOTT, M. D.

June is the old month of roses, and we write of this Queen of flowers in the season of June roses, with fields of them blooming around us and the memory going back to a time within this century, when in the best gardens west of tide water, there were but the old *Cinnamon*—the "Damask," or *Light Blush* of recent catalogues, (now only fit to feed rosebugs)—the *Tall White* and the *Red*, (probably the York and the Lancaster—and now and then, outside the garden, and clump of Sweet Briar—the only one not fallen into barrenness or decrepitude—though the old white is still a great favorite with old fashioned people, and the old Red blooms as showily as ever.

At the present time the Rose Catalogue enumerates sorts by the thousands, and of all colors, except blue, and of all habits of growth, from the dwarf of a few inches, to the climber, making shoots of twenty feet in season. Nor is this all; instead of being confined to the first summer month, we have them in bloom, in the open border, as far north as the great Lakes, from the end of May to the beginning of December, and at the Southern extremity of the Union during every month of the year.

The *species* of the genus ROSA are not very numerous—though the varieties from seed and the occasional "*sports*" are endless. Cross breeding and hybridizing giving the greatest results; and high culture and judicious protection perfecting the product of nature and art.

The commercial or professional classification of roses is somewhat arbitrary; and far from clear or definite. The first, and still the most common

class, north and west, is that of the old "June," or Garden Roses. Most of them are entirely hardy, and best suited to the climate of north 42 degrees—though some of them bloom abundantly as far south as St. Louis.

Of this class, *Scotch Roses* are quite distinct in foliage, though neither showy nor diversified in bloom. Still, their delicate little leaves and flowers, early habits, and extreme hardiness and rapidity of propagation render them desirable in ornamental hedging, and out of the way borders. The yellow roses of this class, much resemble the Scotch in foliage and hardihood, and are, perhaps, a little more desirable—and they are certainly more fashionable. The old French, Provence, Damask and White Roses of the class, run into such endless sub-varieties—different, but not distinct—and so over-lap each other in their subdivisions, that it will take a better rose fancier than the writer, to show them up separately.

The MOSS and HYBRID CHINA roses are more distinct in classification, and, with a few exeptions, by far the most desirable of all the June Roses. Our exceptions for this latitude, are some of the White, the Provence, and a majority of the *Climbers*. Nearly all the White Roses are desirable; and we would sooner part with any other than lose the old CABBAGE PROVENCE. And surely the climbing roses are indispensable, especially in cities, where but a few feet of *soil* and a large spread of wall is available. Of the June climbers the AYRSHIRES are the most delicate, and the PRAIRIE Roses the most robust and showy. Of the latter, the old Queen of the Prairies and the Baltimore Belle are good types, and quite sufficiently dissimilar in bloom—their only fault is lack of fragrance. And now we are told of a new child of this marriage—the King of the Prairies—with more beauty than either Queen or Belle, and yet, withal, as fragrant as the old Damask. Success to you, Mr. Feast—may we soon feast our senses on this king of the Prairie Climbers.

But there is another class of roses, which is rapidly spreading and displacing these good old garden sorts, which however beautiful are at best but a short month in flower, and for the balance of the season unsightly cumberers of the ground—unless pruned and cared for more assiduously than the effect will warrant. We now refer to those sometimes called PERPETUALS—but which are more naturally divided into "Everbloomers" and two season roses—or *Remontants*. With good treatment, the Everbloomers proper give flowers during the entire growing season; while the Remontants have two seasons; one with the June roses in early summer, and the other late in autumn.

A large proportion of the roses are set down as "hardy" in the books—

but we find very few of them entirely so in practice. In fact, only a part of the "Hybrid Perpetuals" of the Remontant division. All the Noisettes, Teas, Musks, &c., of the China family which we have tried, are quite too tender in our soil; and even the glorious BOURBONS are little, if any better than "half hardy," at the best—though in Chicago and other cities north, we have seen them doing reasonably well in a few instances—owing to the protection by buildings and enclosures.

Still, we contrived to winter a few sorts, by cutting down too near the ground late in the autumn, and covering the stumps with dry earth and hay or straw. The new shoots of the Gloire de Rosamen have commenced blooming early in June, and continued until cut down, in November.

But such Remontants as Duc D'Aumale, Dr. Marx, Earl Talbot, Madame Laffay, &c., have withstood our winters, without any artificial protection, whatever. And yet, according to our experience, some of these are quite as hardy as the Hybrid Chinas, and other June Roses.

To increase the autumnal bloom of the Remontants, we practice disbudding in June, having then a great abundance of other, equally fine flowers, of the border sorts.

But a word on culture and propagation, and we close. The cultivation of the Rose is very simple. The whole secret may be summed up, in *depth* and *richness*, of pulverized and well drained soil. A clay loam suiting best; except for propagation, where a sandy loam is desirable. Dig the soil two feet deep, drain it still deeper, and enrich it with thoroughly decomposed manure. Plant recent suckers, with small, new roots; or good *layers*—never more than ten years old—keep out grass and weeds, and *fork up the soil*, every spring, and with good sorts you will never fail of realizing all you can reasonably hope for, in the way of Roses.

Except climbers (and a very few other individuals) a Rose plantation should be set, once in from four to six years, and the crabbed old stems, and gnarly roots thrown away, unless needed for growing layers.

The climbing roses, the yellow moss, &c., need very little pruning, and the old wood should be *cut out*, rather than shortened, while most of the others require shortening, and a severe cutting out of old wood, besides. The Rose nippers or shears, is the implement for this work—and immediately after blooming, is a good time to cut out a part of the old wood, (where the new is abundant) and very early in spring, at the time of forking, the new wood may be shortened, and all the old that can be spared, finally cut out, to give more strength to that which is to afford flowers, on the current growth of the coming season.

Budded Roses are not suited to our climate.—In out-door culture, we depend entirely upon LAYERS of the current growth, put down as early in July if practicable, though August will do. It is not always necessary, but it is *always best* to nick or tongue the layers, and in clay or mucky soil, to cover the part with clear sand, pegging down and *mulching* with leaf mould, or other material—also shading the plant for some days after the operation; we have found this better than excessive defoliation.

Prairie Farmer.

VINE DISEASE.

We have just had an opportunity of examining two VINE HOUSES which we think throw some light on the subject of the disease which has lately been so prevalent in some parts of England. The Vines in the two houses are of the various sorts, principally, however, Sweetwater and Black Hamburg, and the one some weeks later than the other. Not the slightest trace of disease is visible on any of the vines trained to the roof of the house, except perhaps a slight pallid tint about the young laterals, to which, however, much importance cannot be attached; the leaves on other parts of the trees are quite as they should be, and the grapes themselves without spot or blemish. In one of the houses, however, were about a dozen pots, containing Black Hamburg and Sweetwater Vines, every one of which exhibited leaves covered on the under side with little green pustules. As the whole of the Vines planted in the border were healthy, it became a matter of interest, to ascertain the state of the soil and roots in the pots, and on examination they proved to be badly drained; a large portion of the roots, indeed, were dead, in consequence of some former drought; the new roots were unhealthy, and the soil, though not absolutely water-logged, in an unfavorable condition. What, therefore we have suspected all along, seems to be verified, that in all those cases in which the leaves are deformed with pustules, the root is the seat of evil, and that the remedy must be applied there.

The next point was to examine the structure of the excresences on the leaves, which was impossible in the shrivelled, bruised specimens previously submitted to inspection, and in every case it appeared that they were due to an hypertrophy of the epidermal cells of the under surface, at the expense of the spongy tissue above, by means of which the air is admitted into immediate contact with the walls, and is thus enabled to act upon the fluid which they enclose. The effect, therefore, must be, where the warts

are in great abundance, to prevent the proper aëration of the juices, which in consequence, return in an unhealthy condition, and are unable to supply the exigencies of the fruit, which very naturally contracts disease, and ultimately decays. The cells of which the warts are composed contain only a few scattered grains of chlorophyl, and have apparently a very low degree of vitality, so that they soon become brown, and thus cause the spotted appearance which defaces the beauty of the foliage. It is not pretended that the spots upon the berries themselves are at all of the same nature as those upon the leaves, but rather that they are due to natural decay induced by the depraved state of the juices arising from the disease, which is so evident upon the foliage.

The spot in Geranium is, we doubt not, a case of quite a similar character, though we have not at present accurately compared the two maladies, and the disease so prevalent in pear leaves may belong to the same category, though it is often accompanied by a minute Acarus; for it is possible that the Acarus may simply take up his abode in the pustules and not be chargeable with their first origin. It is not asserted to what particular condition of the roots the evil may be due, whether to the former drought, which caused many of the roots to perish, or to the subsequent ill-drained condition of the soil when charged with water, or to marked alternations of drought and moisture; but now that the probable origin of the evil has been pointed out, it would, perhaps, not be difficult, where there are sufficient opportunities of making experiments, to acquire some certain information on the subject.—M. J. B., *in Gardeners' Chronicle.*

CASSIN'S ILLUSTRATIONS OF THE BIRDS OF CALIFORNIA, &c.

Perhaps the most beautifully gotten up book at present in course of publication in this country, is, the Birds of California, Texas and New Mexico; by our valued friend and contributor, John Cassin, Esq., of this city. It corresponds in size with Audubon's 8vo. edition of the Birds of America, to which this may serve as a supplement. The plates, lithographed and colored by Mr. J. T. Bowen, are exceedingly well done; and in many of the plates, plants of the region inhabited by the birds figured are represented. In the last number, Zauschneria californica and Nemophila insignis are well given. It is published in numbers at one dollar each, by Lippincott, Grambo & Co., of this city. The work will be completed in about thirty numbers.

APHELANDRA SQUARROSA LEOPOLDI, Car. Lodd.

COLOR PLATE

APHLAYDRA SQUARROSA LEOPOLDI, Cr. Lmgr.

COLOR PLATE
INTENTIONAL SECOND EXPOSURE

APHELANDRA SQUARROSA LEOPOLDI, Car Lég.

THE FLORIST
AND HORTICULTURAL JOURNAL.

APHELANDRA SQUARROSA, (Var. Leopoldii.)

Acanthaceæ § Aphelandreæ, Nees.—Didynamia-Angiospermia.

Charact. Gener. *Calyx* quinquepartitus, inaequalis. *Corolla* hypogyna, ringens, labio superiore sub-fornicato, bidentato, inferioribus lateralibus multo minoribus. *Stamina* 4, corollæ tubo inserta, inclusa, didynama; antheræ uniloculares, muticæ. *Ovarium* biloculare, loculis biovulatis. *Stylus* simplex; stigma bifidum. Capsula terestiuscula, bilocularis, tetrasperma, loculide bivalvis, valvis medio septiferis. Semina compressa, retinaculis subtensa.

Frutices americæ tropicæ; *foliis oppositis, spicis axillaribus et terminalobus, tetragonis, bracteis oppositis, submembranaceis, bracteolis, angulatis, corollis speciosis, rubricundis.* R. Br.

Charact. Specif.—A. (§ Platychila) semi-herbacea, succulenta, glaberrima; foliis petiolatis, oblongis acuminatis secus nervos pulchrè albido pictis (an semper?), spicis 1-3, terminalibus, squarrosa-bracteosis; bracteis amplis, 4-fariàm imbricatis, obovato-orbiculatis, apicem versus leviter complicatis ibique leviter eroso-denticulatis, obtusis v. acutiusculis, granulis resinosis viscosis conspersis; floribus ad axillam bracteæ cujusvis solitariis, sessilibus; corollæ flavæ sesquipollicaris, bilabiatæ labio superiore 2-lobo, inferiore 3-partito, divisuris obtusis.*

Aphelandra squarrosa, Nees ab Esenb. in Endl. et Mart, Fl. brasil, fascic. 7 p. 89 et in DC Prodr. XI. 300.

Charact. Variet.—Bracteis pulchrè citrinis.

The Aphelandra squarrosa var. Leopoldii, has lately been introduced from the province of Rio de Janeiro in Brazil, by a Belgian lady, who has

* Bracteæ basi imâ incrassatâ, sicut rachis, niveæ, exdescriptione Neesianâ cæterum aurantiacæ, in stirpe nostrâ pulchrè citrinæ, imæ duæ v. 4 oblongæ, acuminatæ, pollicares, luteo-virides.

Bracteolæ ad basin floris cujusvis 2, subulatæ, laciniis calycinis duplò breviores, circiter 2 lin-longæ. Laciniæ calycinæ subulatæ, acutissimæ, posticâ cæteris triplò latiore et paullò breviore, apice bidentatâ.

Stamina 4, subæqualia, labio superiore corollæ parum breviora, basi imâ et apice leviter puberula. Antheræ (uniloculares) lineares, villis apicalibus inter se connexæ, connectivo lineari, dorso villoso. Ovarium disco pulviniformi crasso impositum, oblongum glaberrimum, bipoculare, loculis 2-ovulatis. Stylus filiformis, glaber, apice sensim dilatatus fobeâque infundibuliformi, stigmaticâ insculptus.

named it in honor of the present king of that nation. Dr. Planchon, in describing another variety (*citrina*) of the same species, says of it, that it is an half shrubby plant, with a simple, erect, somewhat succulent stalk, with large oblong leaves, of a fine green, with bands of ivory white very delicately marked along the middle and lateral nerves, which is, so far, constant; the present variety differs from the last in greater size of the leaves, by the persistence of the marking which covers the lateral nerves, and by the richness and long duration of its inflorescence.

Dr Planchon also remarks (in the *Flore des serres*) that "a striking resemblance in the inflorescence, might at first glance, presuppose more affinity between this plant and the *Porphyrocoma lanceolata* (Hook. Bot. Mag. t. 4,176) than really exists. On the other hand, the *Hydromestus maculatus* of Scheidweiler, a Mexican plant, omitted in the work on the Acanthaceæ of the *Prodomus*, is evidently a species of *Aphelandra* (*A maculata*, Nob.) a neighbor of the squarrosa, from which it differs by its green, opposite bracts, and its much smaller flowers.

This plant requires heat, moisture and shade. It is easily increased by cuttings.

ACANTHACEOUS PLANTS; AND THE CULTURE OF THE APHELANDRA.

The whole family of plants to which the *Aphelandra* belongs is one of much interest to the floriculturist. It is also one of the oldest in cultivation, and has probably more handsome representatives than any other tribe.

Known as the family of *Acanthaceæ*, over one hundred different genera have been described, of which over one-fourth are well known to the writer as containing one or more beautiful species. One of our oldest acquaintances, one of the first plants to excite our boyish admiration, the *Acanthus mollis* is well remembered, not only for the beautiful spikes of large blue flowers which it annually produced in the border devoted to hardy herbaceous plants, but also for the interest which attached to it from the leaves having originally suggested the elegant form of the Corinthian capital in architecture.

Subsequently, our attachment to the tribe was certainly not lessened

by a further acquaintance with the various forms of *Justicia*, *Eranthemum*, *Geissomeria*, *Bartleria*, *Beloperone*, *Schaueria*, *&c.*, all containing well known old favorites. Every year seems to add some pleasing link to our chain, almost all of them "holding their own" in popular estimation.

Porphyrocoma lanceolata is a beautiful plant when grown in a strong, moist heat, in well drained pots of *coarse lumps* of turfy loam, and made bushy by pinching in when young. *Asystasia coromandeliana*, is another beautiful twining plant, with light blue flowers, and grows well in the same kind of soil and temperature as the last, but likes to be more shaded from the sun than any of the tribe I have grown, *Henfreya scandens*, perhaps, excepted. There is another beautiful little form in *Ruellia elegans*, a plant growing but a foot high but very bushy, and covered with sky-blue flowers, rivalling those of *Nemophila ensignis*. It likes to grow in the full sun in a moist heat of about 60°. We might also include the *Whitfieldia lateritia* but as it is easily grown, its brown-colored flowers are not generally deemed gay enough for extensive culture.

The whole tribe is one of easy management; of the Thunbergia division, plenty of heat and sunlight are the main essentials of success. The annual kinds do well sown in May in the open border: and the perennial planted out into a border of rich earth about the same time. Some of the perennial kinds are now removed to another family, the red and the blue, now constituting *Hexacentris coccinia & H. grandiflora*. These two plants are generally difficult to flower in pots; though they grow freely. An abundance of light and air, plenty of pot-room, and a temperature above 60°, is all they require to bloom freely. They are beautiful objects when so grown.

Of the *Ruellia* division: the *Henfreya scandens & Goldfussia anisophylla* are very valuable hot-house plants; the first doing well in the deepest shade of a hot, moist house and abundantly producing the whole season creamy-white flowers: and the last doing equally well in the full sunlight of a dry stove. In the *Barleria* division, few things can exceed the beauty of the *Geissomeria longiflora*, or even of the newer variety *G. elegans*. The greatest difficulty with the first is, its very erect habit of growth, rendering it almost impossible to get a bushy, handsome specimen; the latter is more tractable. In the *Justicia* tribe, we have a number of handsome plants, among which the genus *Aphelandra* stands pre-eminent. The old *A. cristata* can scarcely be surpassed, when cultivated properly, in the beauty of its flowers, the species now figured, claiming superiority mainly through its lovely foliage.

To cultivate the *Aphelandra* successfully, cuttings may be struck at any time from the beginning of the year till midsummer. The nearer the latter date the dwarfer will the plants be at the time of flowering. Cuttings root very readily in a sandy soil and strong, moist heat. When rooted, they may be potted into small pots until well established, when they should be at once put into the pots intended to flower them; a twelve-inch pot would raise a very good specimen. The soil should be half-rotted turfy loam, with about a fourth or fifth part of well decayed horsedung: the pots, of course, to be well drained.

In the early struck plants, the tops of the young shoots may be kept pinched as they grow, till midsummer, when they must all be suffered to run up, if wished to flower the following winter. It is a plant which delights in a high, moist temperature, with abundance of water, a little, but not too much shade and frequent syringings. The mealy bug and various kinds of *Aphides*, are great lovers of this plant and *constant attention*, the best nostrum yet to keep down insects, is needed to oppose them.

A Philadelphia Gardener.

ON THE CULTURE OF THE PELARGONIUM.

No greenhouse plant has excited such a spirit of emulation among florists as the Pelargonium, or what is popularly termed "the Geranium." That it is worthy of all the care and attention bestowed on it, few who recollect the contrast between those raised some thirty-five years ago and their progeny at the present time, will question. Unlike the Tulip, the Carnation, the Pansy, and similar florist flowers, our present subject cannot boast of such a multitude of raisers; chiefly from the fact that to be successful, needs space and time, and is more the occupation of the "Amateur" of means than the humble mechanic who has so prominently figured in the raising of "gems" of the above flowers.

But, if numbers have been wanting, enthusiasm in those engaged have not, for it has been our good fortune to live with one of her "devotees," from whose establishment many of those emanating from Mr. Gains, of Battersea, have been raised. The peculiar pleasure exhibited by this gentleman, almost hourly during the flowering of the seedlings, examining the bursting buds, and in some instances, curiosity being at such a pitch as not to wait for the natural opening of the petals, but partially perform it himself, is still vividly impressed on our memory.

This gentleman, who is, if still alive, far advanced in years, has, many times with exulting pleasure, given an epitome of its early history. Of the firstimpulse imparted to the floricultural world in the environs of London, by the first appearance of Davy's "*Daveyanum*," Moore's *Victory*, and Macranthum, the lions of those days, of the sensation created by the "new Duchess of Glo'ster, the most noted flower in the beginning of our days."

From that time to the present, vast strides have been made, and the "properties" of many of the present flowers are all but the perfection aimed at, namely, a circle, with the colors, whatever they may be, bright and dense. Among the most noted raisers is Mr. Foster, of Clewes, near Windsor; whose first, his "Gem" subsequently "Sylph" gave him a name above all his compeers, but which have long since sunk into silence, giving way to their more showy rivals.

But to return to what more immediately concerns our present purpose, we intend giving a brief outline of its management as a seedling, and as a specimen plant.

AS SEEDLINGS.

The seeds should be sown as collected in the following manner, as much less difficulty is experienced in getting them to germinate if sown at once, than where they are allowed to dry.

Prepare shallow pots or pans, put in one-fourth drainage, fill on this to within two inches of the top, with soil recommended below, the remainder with white sand; press firm, and give it a good soaking with water. Have a pointed stick and dib in the seed half an inch deep: keep them in a cool place near the glass and shady. As soon as the plants are well up and sufficiently large to handle, prick off into other pots, filled in the same way except the sand; as soon as they are out in the rough leaf, pot into thumb pots, one in a pot; as the roots get to the outsides, shift into larger till they occupy a five-inch pot, in which they should be allowed to flower. They require during winter, plenty of room, to be placed near the glass, and kept entirely free from green-fly, by syringing with tobacco water, or fumigating. About the first of May, they will commence flowering, when those inferior to what are already possessed, should at once, be entirely discarded, and those giving signs of improvement propagated and seeded from.

AS SPECIMEN PLANTS.

Cuttings may be taken off and struck any month in the year, and of course in the case of nurserymen increasing new varieties, is desirable. But, for private establishments, the most usual and best time, is about a fort-

night after they have done flowering. It is best to let the plants stand out doors that time to get a little hardened. Take the cutting off below the third joint, and then cut off smooth under the joint, allowing all the leaves to remain, except those at the joint to be inserted, which are best taken off. By using a small thumb pot, and inserting one cutting in each, in the centre, with good drainage in the bottom of the pot, of finely broken crocks, the cutting as soon as it has struck, and the roots showing outside the ball which will be in about three weeks, may be at once shifted into larger pots without disturbing the roots. The cuttings will strike best if placed in a cool frame, and kept near the glass, shaded and moist, but not wet.

About October, if the plants are strong, they may be shifted into four inch pots; in December, they may have their shoots stopped, keeping them somewhat dry till the eyes have pushed, and as soon as they have fairly started, they may be shifted into a six or eight inch pot, which is large enough for them to flower in the first season. The plants may be again stopped in February, and the branches regulated, after which they will require no more shifting till after they are cut down, when they may be prepared for making specimens.

We will now suppose, that we have a one year old plant from the cutting, and in the month of July, cut the plants hard back into old wood, so as to form as neat a bush when broken as possible, using a sharp knife on all occasions, as the wound heals over much sooner. Keep the plants dry till the shoots are pushing freely. By the end of August, the eyes will have started sufficient to reduce the roots. Take the plants, shake the soil entirely from them, pruning the roots somewhat closely and repot into the smallest size pots the roots will go into. Place them in a frame and keep them close till they get established, occasionally damping them overhead with a fine rose, after which, give plenty of air night and day, merely keeping them from drenching rains and blustering winds.

All plants intended for exhibition or fine display, are housed by or soon after the first of September, having received a shift into a size larger pot. In October, all the plants intended for the May shows, receive their final shift into the flowering pots. Those intended for flowering in June, should also receive a shift as the pots become filled with roots. In December, the June flowering will require stopping, and in February, they may receive their shift into the flowering pots, after which no Pelargonium should be shifted, as the consequence if potted later is, that the wood does not get sufficiently ripened to bring a good head of bloom, but have a vigorous

foliage up to the time when they ought to be preparing the flower-buds. The last stopping of the June plants should take place in March, keeping the plants at all times well thinned and regulated, with ample room for the foliage to develope itself. The May plants will by this time, be fast pushing their buds, and require watering once or twice a week, with weak manure water as well as regulating their branches to form a nice even surface at the top. We find that occasional syringing over the foliage materially assists them, especially towards the spring, although others object to it. Too much air cannot be given, or too little fire used for the Pelargonium, provided the house does not get below 40°, and studiously avoiding all cold currents of air.

As a general rule, the Pelargonium during the early months are better to flag occasionally for water than to be over watered, to be cool rather than warm, and under than over-potted, being much easier to apply a stimulant to an under-potted plant, than to recover a plant once sodden or over potted.

As regards sticking, use as few as possible, but use sticks in preference to having the heads of flowers lopping this side and that, for it is notorious, that the growing of plants in pots is entirely artificial, and as such, neatness should be the point aimed at, and if sticks are used, as much concealed as possible.

For soil, use turf from a loamy pasture, the thinner cut the better. It is improved by laying in a compost heap, one or two years before using, when it may have had a third or fourth of its bulk of the dropping of a stable mixed with it. But as this is often out of reach and a substitute has to be prepared, take the best turfy loam to be got and well incorporate it with a fourth of decayed stable or cow dung, breaking the lumps with the hands or trowel, sifting only for the cuttings; white sand should be added according to the texture of the loam.

About a sixth of the pot should in all cases, be occupied by drainage covering it with some of the rougher portions of turf to keep it free.

September 4, 1854. EDGAR SANDERS.

BOTANICAL THOUGHTS ON THE STRAWBERRY QUESTION.

I observe in your last number, that you seek the opinion of the Botanical Committee of the Pennsylvania Horticultural Society, on the subject of the sexual differences and changes said to be observed in the cultivation of some strawberries.

I am at a loss to conceive what is required of it; a mere expression of *opinion*, is of no scientific value, more especially in Botany, which is emphatically a science of facts. Had you anything to place before them, seeds, flowers, plants, specimens, something on which a report could be founded, a meeting of the Committee would be consistent; in the absence of these, the result would be but the proceedings of a debating club, in which judgment goes by a majority, and could stand as a scientific truth only so long as a different committee should not decide to the contrary.

Without specimens before us, all that could be done in the case, would be to inquire whether the sexual changes in question, were or were not probable; but probabilities are not facts, and are beyond the field of botanical inquiry.

The examination would be more legal than scientific, it would involve the honor or accuracy of the observer of the stated facts; not the correctness of the facts themselves. It is a question for individual examination and study, not for the decisions of committees or conventions. I would propose to those interested in the matter, to study the scientific bearings of the question for themselves. A little knowledge of the old Linnæan system of Botany would be of service. Amongst other classes in that system, are three which have a bearing on the cases in point, *Monoecia, Diœcia and Polygamia.* The first, comprises those plants which have the stamens and pistils on separate flowers, but on the *same plant.* The second, those which have them on separate flowers, or on separate plants; and the third, those which have the power of providing them on the same or separate plants, or even with perfect flowers, as circumstances dictate.

Now, in reference to this strawberry question, it seems that the great botanist Linnæus, placed it in his twelfth class, as, in his observation, its constant character was to bear its flowers perfect. Mr. Longworth and others, subsequently showed that this was an error, as, in their observation it was constantly Diœcious. Subsequently, Mr. Meehan comes forward a step farther than either of these, with the observation that the plant is really polygamous.

What does all this amount to? Linnæus and Mr. Longworth take to extremes, and Mr. Meehan the intermediate, reconciling the other two.

That the plants' character is not consistent with Linnæus' disposition of it, is certified to by Mr. Longworth, and that it is not diœcious, is attested by Linnæus' perfect flowering plants, and thus, each shows incontestably that the other is wrong. But the inference cannot be drawn, that because it belongs to neither of these sections, it belongs *nowhere.* If it is not perfect, not monœcious, not diœcious, the probability is, without Mr. Meehan's or any other persons' observations, that the plant is polygamous, or in other words, has the power of bearing either of the three by turns, according to circumstances. In this class, and having this changeable sexual character, the strawberry does not stand alone. The ash-leaved Maple, Honey Locust, Kentucky Coffee, Ailanthus, Persimmon, Millet, and many kinds of grasses, including the new celebrated *Ægilops*, have all this tendency to vary in their sexual organs, by some apparently anomalous law, equally as in the strawberry: so great indeed, is this tendency to change, noted in the Linnæan class, Polygamia, that all modern botanists who classify on this sexual system, reject the class altogether, referring all its representatives to the class to which its perfect blossoms belong, looking on the want of stamens and pistils, as an abortion and not as an essential or elemental want, as in all plants formerly referred to this class, the *rudiments* of stamens and pistils, are always visibly present, awaiting but favorable circumstances to call either or both of them into perfect existence.

In a true monœcious or diœcious plant however, the rudiments of stamens in pistillate, or of pistils in staminate flowers rarely or never exist. Thus, they *have to be* constant in their sexual character, and it is next to impossible for them to change. We may expect to look a long time for an Osage Orange, Paper Mulberry, Poplar, Willow, Oak, Chestnut, Pine, or many other monœcious and diœcious plants, to change their sexual characters, because they have not the rudiments of all the organs necessary to a perfect flower in their separate ones.

I think I have explained clearly the difference between a Polygamous plant, and one that is truly minœcious or diœcious. Those who wish to judge for themselves in the case of the Strawberry, have only to observe whether a pistillate or staminate flower have imperfect stamens or pistils at the same time. If it have not, it is not a Polygamons plant, and those who assert the changeable character of its sexes are probably wrong; but if it has, they are probably correct in their theory. I say *probably*, because nothing but the direct observation of the change, in fact, can establish the circumstance as a Botanical fact. Whether this direct observation has or has not been made, it is not my purpose here to inquire.

JULIUS.

For the Florist and Horticultural Journal.

Sir: I feel indebted to you for favoring us with your opinions of the blossoms of Mr. Harper's, apparently barren apricot trees; you may be right and I wrong about their anatomy, yet the few which I hurriedly dissected, were as I stated. When I called to see the trees, I was then on my way to the railroad car to go to the country, and Mr. Harper can tell you that I was only ten minutes on his place: during that time, I climbed both trees, cut the few shoots, labelled, tied them up, and wrote the note you got with them. I sent them to you as I had promised, because I considered your judgment superior to my own; after this, I expected that you would comply with my request, and give us your opinion through the Florist. I waited several months in vain, and then wrote to the Farm Journal, thinking to excite some other Botanist's curiosity, to examine the trees next spring, when in bloom.

You say that the blossoms of the barren tree, are perfect with the exception of pollen; it then appears strange to me, why it never got impregnated with the pollen of the fruitful tree, since it was in blossom at the time, and stands so close to it that some of their branches mingle. You attribute the want of fruit to an over-luxuriance in the tree. I should think that such luxuriance would also prevent its blooming, but the fruitful tree appears to me to be the most stately and thrifty, although the other's leaves are much larger. You doubt not that the barren tree will bear fruit, if it were root pruned. I am for leaving the tree to nature, and if it will bear fruit, it falsifies the doctrine that, "all varieties of plants become as their original when left to themselves; yet I am for some scions or buds inserted on other stocks, say Plum stocks, and that would show what cross culture can do. You know that the late distinguished Van Mons, has told us that he obtained fruit of his seedling pears, two or three and sometimes four years sooner, by grafting them on other stocks, than he could from the seedling trees themselves.

Philadelphia, Sep. 22, 1854. Sambucus.

It is always better to hear both sides of a story; the Editor has nothing further to say than what was said in the last number, in reply to Mr. Sambucus' observations in the Farm Journal; except to remark that, in order to avoid the renewing of a disagreeable subject, no public notice was taken of the specimens sent.

SOME PRINCIPLES OF VEGETABLE PHYSIOLOGY BEARING ON THE CULTURE OF PLANTS.

BY PROFESSOR W. H. DE VRIESE, OF THE UNIVERSITY OF LEYDEN.

(Translated from the Dutch.)

If we consider the vegetable kingdom attentively, we are astonished as much with the variety as with the greatness and magnificence of the phenomena which it offers to our contemplation. Almost every season, every day, every hour, and every place, presents us plants under different circumstances, with peculiar qualities and in varied forms. Scarcely does the soft air of spring refresh the earth, when every object, in which there is still a germ of life, becomes developed with astonishing rapidity. The plants which spring has graced with foliage, summer decks with a multitude of flowers. In autumn the fruits are collected. In winter those plants, once so beautiful, are found to be, some in a state of dissolution, others in a state of rest, or in a continued development, which proves that nature is engaged in an indefatigable activity. But, in winter, the greater number of plants die; the fallen foliage decomposes, returns into the earth, and becomes the rich source of nutriment for a succeeding growth.

But to judge of those changes which are observed in plants such long periods are not required. How great is the variety in the phenomena of flowers and plants daily to be seen! Observe them attentively early in the morning of June or July, when night has scarcely raised its dark veil, and when the sun is hardly risen above the horizon. Everything has another aspect than during the day. The flowers are closed, the leaves have changed their direction; those that were spread out seem disposed to close, and present quite another appearance than by day; you would even think them about to reunite into their former state of buds, and to return to a state of formation and development. The vegetable kingdom sleeps! However, not only the form and position, but also the colors, have quite a different appearance. The fields have often a green color, like that of the waves of the ocean. And this is not only the effect of vapors fallen from the atmosphere, but also of the fact that plants, by their altered directions offer us surfaces that are differently colored.

Another cause of this phenomenon is that on their surface a cover like wax is left, which the sunbeams cause to disappear afterwards, and then the original color presents itself again. At mid-day all is in its full splendor. The flowers are opened, the leaves are spread out, and often they reflect the sunbeams from their shining surfaces; sweet smells spread over the fields;

vegetation attires itself with its most magnificent raiment, and proclaims to the serious contemplater of nature the greatness and power of Him who called all things into existence.

And in what state does the vegetable kingdom appear to us in the evening? While the last rays of the sun, the source of life in nature, yet linger in the west, the plants seem to be again in a deep sleep. The whole of animated nature, as if wearied with the day, inclines with them to repose. The birds and other animals, inhabitants of the woods, are silent, hiding themselves among the branches and leaves; the insects creep to their holes; silence and calm reign everywhere, till morning comes to revive the whole creation. When reflecting on all this, one tries naturally to mount to the causes which bring about such contrasts, and to give a reasonable explanation of them, which is not founded upon a principle already received, but on one derived from the very phenomena. The science designated the physiology of plants proposes to itself such investigations. A zealous and unprejudiced inquiry has already explained many difficulties. But when we consider the immense field of our labor, the knowledge which we possess is still very limited. There is much, perhaps, that we shall never wholly understand; but this must not discourage us from pressing forward. Every good observation, every remark is an element—a gain for science.

If the reader will follow us, we will centre our thoughts in the great laboratories of nature, and there observe attentively what are her actions, and in what manner she performs them; perhaps we shall be able to explain one or another of those contrasts which we have just mentioned, and which, at first sight, do not seem susceptible of solution.

In considering a plant externally and superficially, we should not easily presume that its structure is so beautiful. However, it is composed of elements so small, that the most sharp-sighted eye is unable to distinguish them. For this we make use of the instruments called microscopes, consisting of a series of polished glasses, which have the apparent power of enlarging small objects some hundreds of times, and which help us in finding out what it would be utterly impossible to perceive with our unaided senses.

The microscope was first invented in Holland about the end of the 16th or the beginning of the 17th century, and in late years it has been brought to a high degree of perfection. By means of it we learn that plants consist of membranes or vesicles, which are hollow, or rather fill up and enclose a certain space, and are generally spherical; which afterwards, on approximating one to another, change their form, and often become elongated, and when joined together form the body called vegetable tissue. This membrane

is colorless and transparent, it has no openings and contains fluids, and in those fluids there are different substances, the productions of vegetable life, either in solution or in a solid state. The membranes take up fluids externally particularly water; they bring them into the nearest vesicles or cells, and in this way the fluid, which the outer cells of the root take up from the ground, is carried up and circulated in all directions through the whole plant, and becomes the source whence are formed all the different organs of which the plants consist; and though all are formed upon one and the same principle, however, each is separately modified to discharge a more or less determined service, and to contribute its particular part in maintaining the organism of the whole. So the root has functions to perform quite other than the leaves, and again these serve to other purposes than the flower, the fruit, the seed, &c. Though the membranes which surround the cells are shut, and have no openings at all, yet they are pervious to fluids. This property is common to membranes of the bodies both of animals and plants. The most simple examples prove this. If I expose in the air a bladder filled with water and well closed, all the water will be lost by evaporation on the surface, and the bladder will fall together, though it has no openings. The thinner the membrane of the bladder, the sooner all the fluid will be lost. If we expose membranes with each surface to different fluids, they penetrate through the membranes and mix with each other. The degree in which this takes place depends greatly on the nature of the substances which are used; the thinner fluids penetrate, however, in greater proportion than the thicker ones. This may be proved by a calf's bladder, half filled with the white of eggs, which, when put into water, being put into an albuminous fluid, will become empty and fall together. This is no doubt a remarkable property. The cavity which contains the thicker and more glutinous substance, admits through the membranes of the cell a more fluid one. The same is to be observed in this respect in the membranes or vesicles of animals, and in the cells of plants. Gum, slime, sugar, albuminous and other substances are found in a smaller or larger quantity, in the cavities of the young cells of all, particularly younger organs; they are also present in those of the outer points of the root, which takes up from the soil a moisture, consisting chiefly of water, mixed with small quantities of different substances, soluble in that water. The moisture from the earth, being thinner than the fluids in the cells, penetrates the membranes of the cells in the roots, and with it those substances, the nature of which allows them to penetrate through the membrane, and to fix and unite with the sap are admitted into the cells; whereas, on the other hand those substances, which

cannot be united with it, are not absorbed by the roots. It is as if the roots had a preference for some nourishing substances in the ground, and a dislike for others; and it is alone by this that we must explain how some substances of the ground are taken up by the plants, and others not; why, in fine, each plant requires its own soil and is often unable to grow upon other sorts of ground.

As the plant is fixed in the ground by the roots, so is the stem, with its organs, in relation to the atmosphere. From the different nature of these two situations proceeds a great difference in the development. We have already spoken above of the various forms assumed by the tissue, which we called the tissue of the cells. Among them there is one, of which here, in connection with our present considerations, we must particularly speak. They are, in fact, those cells which are met with on the surface of plants, and which we designate the cuticle. They differ in many respects from all other tissues, though we may believe that they consist of the same types. If the leaf of an Iris be steeped in water during a fortnight, this membrane will become detached from the undermost parts, or the surface may be separated from the fresh leaf with a sharp knife. We see oblong rhomboidal vesicles, which compose the flat cells of the cuticle. Further, we remark small openings or stomata, which may be compared to the pores in the skin of animals, and formed by two vesicles of a curvate shape, which unite at the end, and leave an open space in the middle. There are also in the membrane two sorts of vesicles, the oblong and the curvate. These openings in the cuticle are spread over the whole surface, except in the place of the fibres of the leaf, where they are missing.

All this is covered by another thin and transparent membrane, which covers the whole cuticle, the openings only excepted, and in which we discover lines, the marks of those which show in the cuticle membrane the tissue of the cells. If a cabbage leaf be steeped in water for some days, this upper membrane can easily be separated. It is caused in all plants by the evaporation of substances which remain in the cuticle in a fixed state.

It is impossible to enlarge on the subject of this cuticle, which presents itself in innumerable other modifications. This may be said here of the above mentioned stomata, that it may be accepted as certain that they must be in a very near relation to the respiration of the plants, that is, the relation of plants with the atmosphere, chiefly when we consider in what a great quantity they are often found. In the space of □0,001, there are 2,846 on an Orange leaf, 1,000 on that of the Purslain plant, 480 on a Rhododendron leaf, 150 on that of the Oat, &c. More than three millions have been counted on a single leaf of the above mentioned Iris.

But, however important those pores may be, certain it is that it is not by those parts exclusively that the communication of the exterior world with the interior of the plant is entertained. We are sure that each membrane of plants, and consequently also that which lies on the surface, possesses the property of admitting fluids, of whatever nature they may be, without the presence of determined openings, though the conditions which are required for it are not always known to us. It is a fact that the whole surface exhales or respires—takes up fluids and conveys them to the inner part of the plant.

In order to make our further contemplations useful to our readers, we have been obliged by these observations, to introduce them into the structure and nature of plants.

It may be accepted as a truth that the vesicles or cells of the root may be at all times active, in a greater or less degree, even independent of what takes place in the other part of the plant which is above the soil. The "endosmosis," such is called the property of the cells (which contain thicker fluids) of taking up thinner ones—the endosmosis, that peculiar faculty of absorbing, takes place during the colder seasons as well as in the summer in the cells of the roots, and also in more inwardly situated cells. In other words, where there is life there must be movement also. The movement which takes place here, consists of the exchange of fluids from one to another cavity of cells. That movement and the supply and exchange of substances which it necessarily brings about, is the only cause of the growth. It must, though in a less degree, take place in the parts under ground, even when the cold of the winter stops all growth and development—when the superficial contemplater does not see in nature the least trace of life. The following causes will explain how this is possible. When the earth seems to be changed into a crust of ice, the temperature of the ground at a relatively small depth is higher than that of the air. It has been proved by experiments, that the temperature of the interior of trees is different from that of the surrounding atmosphere. It has been observed that even at periods when the thermometer has fallen below the freezing point, and thus when the air is cold, when water becomes ice, the inner part of the trees is warmer. Incisions were made in the trunks of trees in winter, thermometer-bulbs were inserted, and the quicksilver therein was some degrees higher than in that of thermometers hung up near the trees in the open air. The trees retain their proper degree of heat, not-

withstanding all the changes in the temperature of the air. This may be explained by the generally known property of vegetable substances, chiefly of wood (and thus particularly of trunks of trees), preserving their proper temperature. Therefore, those vegetable substances are called "bad conductors of heat."—*Gard. Chron.*

AMERICAN POMOLOGICAL SOCIETY.

This Society met in Boston, on the 14th inst. We have received only the report of the last two days. As it contains much interesting matter, we give it in full.

SECOND DAY'S SESSION.—The Society met in the Horticultural Hall, School street, pursuant to adjournment, at 10 o'clock. The first business was the appointment of Committees, as follows:—

Executive Committee.—The President and Vice Presidents ex officio, William D. Brinckle of Pennsylvania, B. V. French of Massachusetts, J. A. Warder of Ohio, Richard Peters of Georgia, Benjamin Hodge of New York.

On Foreign Fruits.—C. M. Hovey of Massachusetts, Charles Downing of New York, C. B. Lines of Connecticut, S. L. Goodale of Maine, H. E. Hooker of New York, J. M. Hayes of New Jersey, E. J. Hull of Illinois.

On Native Fruits.—William D. Brinckle of Pennsylvania, P. Barry of New York, Henry Little of Maine, Robert Manning of Massachusetts, Thomas Hancock of New Jersey, J. B. Eaton of New York, B. F. Cutter of New Hampshire.

On Synonymes.—J. S. Cabot of Massachusetts, William R. Prince of New York, L. E. Berkman of New Jersey, A. H. Ernst of Ohio, J. J. Thomas of New York, Robert Buist of Pennsylvania, F. R. Elliott of Ohio.

The President called for the opinion of the Convention on varieties of Pears worthy to be placed in the list of "Pears which promise well." After some interesting discussion, the following varieties were placed in that list: Beurre Clairgeau, Sheldon, a New York seedling; Epine Dumas, Collins, a seedling from Watertown, and the Adams, exhibited by Hovey & Co.

The Hampton pear, a seedling from Long Island, was proposed to be placed on the list of varieties which promise well. Mr. Barry, of New York, had known it as the Hagerman. Mr. Earle, of Worcester, said there was a pear extensively cultivated in the easterly part of Connecticut,

called the Hampton; he would like to know whether it was the same. Mr. Prince, of Flushing, said the Hagerman was esteemed as a very great acquisition. Mr. Baxter remarked, that the original tree was found in a hedge. It is a fine growing tree—a beautiful fruit.

Dr. Brinckle, of Pennsylvania, thought we knew too little about this variety to adopt it at present. It was withdrawn to await the opinion of the Committee on Native Fruits.

The President proposed the Dallas pear, introduced by Gov. Edwards, of Connecticut. At first, he did not think very favorably of that variety, but latterly he had formed a very different opinion of it. It was hardy and vigorous.

Mr. Berkman, of New Jersey, regarded this variety as one of the very highest flavored pears. It has lasting qualities, and is very juicy.

Mr. Manning could not regard the quality such as to entitle it to general cultivation.

Mr. Lines, of Connecticut, said the Dallas pear stands very well indeed with pomologists in New Haven, although it has not made a deep impression there. It was not adopted.

The President proposed the Sterling pear. Mr. Barry did not know enough about it to give an opinion. Mr. Lines thought it hardly worth while to adopt it. The President found the tree to be beautiful, the fruit handsome and promising well. It was not adopted.

The Boston pear (Hovey's), was proposed for the list which promise well. It was opposed by Mr. Walker. Mr. Cabot gave his experience of it. When he first tasted it, he thought it as good as the Golden Beurre of Bilboa. At other times, he had seen it when he would not have known it. Mr. Earle had known the Boston pear three years, and it appeared to be better than the Muskingum or the Urbaniste. If it proved as uniform as he had found it, he should think it a very good summer pear.

The President did not taste it the first year it was exhibited; the second year, however, he tried it, but it did not quite come up to his expectations.

Mr. Lines, of Connecticut, thought it not proper to put it on the list which promises well.

The Boston pear was rejected from that list.

Mr. Barry, of New York, would like to hear the opinion of the Convention on the Easter Beurre pear.

Mr. Rich, of Baltimore, said it did well in Maryland, and ripens without difficulty.

Mr. Barry had cultivated the Easter Beurre in Rochester for fifteen

years, and was satisfied that it was by far the best winter pear in existence, for any place where it ripens as well as it does in Rochester. Had he the convenience, he would plant twenty acres with this tree.

Mr. Eaton, of Buffalo, had eaten it in perfection as late as the 22d of April, and considered it the best pear he had ever eaten. It is a good grower, a good bearer, and is unapproachable as a winter pear.

Mr. Walker said the Easter Beurre had always been a favorite with him. He learned from his friend, Mr. Berchman, of Belgium, that the Monks always reserved the Easter Beurre for their especial palate, and he considered that a pretty good indication of its superiority. Finer pears never were grown—better never were eaten. It is not, however, so good in this region as it is in other parts of the country. Mr. Walker moved that the Easter Beurre be placed among the varieties for cultivation in particular localities.

Mr. Barry said the demand for this tree is so great they cannot be obtained, either in this country or in Europe.

Mr. Wilder would like to see it placed upon the list which promise well for certain localities. Specimens had been exhibited at the Massachusetts Horticultural Society's exhibition, weighing fourteen, and sixteen ounces, and they had been sold as high as one dollar for a single specimen. When properly ripened, fifty cents each have been paid for them readily.

Mr. Walker was inclined to think that the Easter Beurre pear was a little too old to be placed in the list of pears which promise well. If fifty years of practice and experience with it is not enough to enable us to determine its true position, let it die. It would be better to withdraw it altogether than to place it in the list of varieties which promise well. We should place in that list varieties only that we are pretty well acquainted with,—new pears that have been cultivated long enough to determine their quality.

The discussion was continued at some length by a great number of members. Various motions were offered and withdrawn, until, finally, it was voted unanimously to lay the subject upon the table until the next biennial meeting; the Society, in its associate capacity, expressing no opinion.

The qualities of the following varieties of pears were briefly considered, and they were placed in the list of varieties which promise well: Grande Soleil, Jaune De Witt, Walker King Sessing, Belle Noel or Fondante de Noel, Doyenne Sieule, Pius Ninth, Fondante de Malines, Beurre Sturkman, Rousselette, Esperine, Zepherine Gregoire, Theodore Van Mons, and Compte de Flandres.

Dr. Brinckle exhibited to the Convention specimens of the Latch pear, a new native; the Regnier pear, and the Graham grape.

William R. Prince, of Flushing, L. I., submitted a list of thirty-three pears, which he proposed should be placed upon the rejected list: Belle et bonne, not rejected; Belle D'Aout—this was said to be one of the most deceptive pears in the catalogue, very handsome, but very miserable—rejected; Belle du Bruxeles, rejected; Martin Sec, rejected; Chesseley, not rejected; Beurre Van Mons, Bouquia, Callebasse of France, or Pitt's Prolific, Jalousie, Leon le Clerc, Levalle, Maria Louise Nova, March Bergamot, Moorfowl Egg, Passane de Portugal, Pope's Quaker, Queen Caroline, Queen of the Lower Countries, Queen of the Pears, Sugar Pear, Summer Bergamot, Summer Thorn, Swan's Egg, and Vert Longue Panache, all rejected.

Chelmsford, Beurre d'Auremburg, Hampden, Bergamot, Mesirre Jeau, Muscat Allemand, Windsor and Beze de la Motte, not rejected.

Mr. Stickney called the attention of the Convention to the Beurre Diel Pear. It had always held a high rank with him.

Mr. Prince remarked that he sent the first Beurre Diel specimens ever exhibited at the Massachusetts Horticultural Society's tables. He sent it under the name of Colmar Souveraine. He considered it a grand pear in every respect. Other members gave their opinions. In the city of Newark, it was esteemed among the best varieties; in western New York, it is universally regarded as the best pear cultivated; at Worcester, it is very popular, where it is mostly cultivated on quince; it is highly regarded in Maine; there is no pear in New Haven thought more highly of. They think more highly of it for general cultivation than any other. Objections were urged that in some localities it cracks badly.

After a full discussion, the Beurre Diel was placed upon the list recommended for general cultivation.

In the afternoon session, the subject of Apples was taken up, and it was voted to take up those apples which at the last session of the Society were placed upon the list of varieties which promise well. The Autumn Bough was first on the list. Mr. Downing considered it one of the finest Fall sweet apples we have. In Newburg, N. Y., and its vicinity, it is very fine. It was not advanced.

The Hawley apple did not do well this year, but last season it was one of the finest of apples. It remains on the list. The Melon apple, originated in western New York, was esteemed worthy of recommendation for general cultivation. It ripens in November or December. There is a tree now in

bearing at Mr. Stickney's farm, in Watertown, with two barrels of fruit. The Mother apple remains on the list. The Northern Spy was placed on the list recommended for particular localities.

The Smokehouse apple of New Jersey—sometimes called the Lancaster Vandevere—was esteemed in Pennsylvania and Ohio as a superior variety; but as it was not very generally known, it was permitted to remain on the list where it now stands.

Mr. Prince recommended the Garrickson's Early Apple. He would also recommend the Sine Qua Non as another superb early apple.

Mr. Hooker suggested that two early apples, which he considered very fine, be added to the list of varieties which promise well—the Primate and Early Joe.

Mr. Downing and Mr. Barry supposed the Primate to be identical with the Summer Pippin. It was highly spoken of, and was regarded as one of the best market apples cultivated. It began to ripen very early, and continues a great length of time. It was placed on the list which promise well. Early Joe was passed by.

Mr. Little, of Maine, called the attention of the Convention to the Ribstone Pippin, especially for Northern situations.

Mr. Prince remarked that it always drops its fruit on Long Island before October, and had erased it from his catalogue; but, afterwards receiving information that it succeeded remarkably well in New Hampshire and Vermont, he restored it.

The Ribstone Pippin was recommended for cultivation in Northern latitudes.

The Genesee Chief was recommended by the Committee on Native Fruits, and it was placed on the list that promise well.

Dr. Eshelman, of Pennsylvania, proposed to place the Jeffreys on the list for trial. He considered it the best apple he had ever seen for its season; it ripens in September.

Mr. Manning considered the Minister apple the very best winter variety he had ever had, particularly for strong soils. It was placed on the list for general cultivation.

The Murphy apple tree was characterized by Mr. Manning, of Salem, as a poor bearer, and the tree is apt to die at the extremities of the branches. Passed over. The Monmouth Pippin was placed on the list which promise well. The Coggswell apple, from Connecticut, a fine looking variety, about the size of the Baldwin, red, juicy, delicious and continues until December, was placed on the list which promise well.

The Committee on Native Fruits submitted a report, the result of their examination of a varieties of specimens that had been submitted to them. The report was accepted. Among the articles reported on was the somewhat celebrated Concord grape. The Committee describe it as large, round, heavy, dark bloom color, flavor more foxy than Isabella, quality good; bunch, in size and form, not unlike the Isabella.

Mr. Lines, of Connecticut, desired to discuss the item in the report concerning the Concord grape. It was a matter of great importance to the public. There is a deep interest felt in the community in reference to any grape that promises to be a substitute for the Isabella. The vote adopting the report was reconsidered.

Mr. Lines now offered the following:—

Voted, That the Concord grape, which we have had an opportunity to examine, is evidently earlier by several weeks than the Isabella grape. It is very juicy, but is inferior in quality to the Isabella, Catawba or Diana.

Mr. Prince considered the Concord grape a decided acquisition to the New England States.

Mr. Bull, the originator of the Concord grape, gave a lengthy account of its origin and his experience with it. It is a remarkably juicy berry, and from a heaped bushel basket he pressed twenty bottles of juice, to which he added four pounds of sugar, and now the wine is too sweet. He believed that wine could be made from it without sugar.

The discussion was continued by several gentlemen, and quite an interest was manifested in fixing the true position of this grape. Mr. Lines withdrew his vote. Some extended remarks from Mr. Walker, recommending caution in endorsing this grape, until it had been tested for at least five seasons, elicited responses from Mr. Bull, Mr. Hovey, and some remarks from Dr. Brinckle. The discussion became warm and somewhat exciting. There is evidently a strong feeling on the grape question, but our limits will not permit us to extend our report. Those who are interested will find a full report of all that was said in the official report of the Society.

At half-past six, the Convention adjourned to meet again next morning, at ten o'clock.

Last Day, September 16.—The Society continued its sessions in the Horticultural Hall, the President, Hon. M. P. Wilder, in the chair.

The discussion on the Concord grape was resumed; the President, Mr. Cabot, Mr. Bull, and Mr. Breck participating in it. Mr. Cabot did not understand that the Society had examined the grape, and it was not called

upon to give an opinion for or against it. The members had not cultivated it, and they knew but little about it. It remained for the Society to adopt the report of the committee on native fruits.

Mr. Bull did not offer his opinion as to the merits of the Concord grape; neither did he desire an expression of opinion of the Society.

Mr. Breck thought it proper that the Concord grape should be permitted to remain where it now stands. It should not be endorsed by the Society until it has been more fully tested.

On motion of Mr. Cabot, the report of the committee on native fruit was unanimously adopted.

On motion of the Secretary of the Society, it was voted "That the lists of all the fruits now on exhibition at the Massachusetts Horticultural Society's tables, contributed by members of the American Pomological Society, be entered on the record of the proceedings of the Convention.

The President submitted the report of a committee appointed at the session of 1852, to consider the subject of erecting a suitable monument to the memory of the late A. J. Downing, from which it appeared that a fund of $1,600 had been subscribed for that purpose, from gentlemen in Philadelphia, New York, Boston, Rochester, Newburg, Buffalo and other places. It is designed to erect the monument in the public grounds at Washington, which Mr. D. did so much to adorn.

The consideration of the varieties of apples to be recommended, was resumed.

Mr. Benson, of Maine, called the attention of the convention to the "Winthrop Greening," known also as the "Lincoln Pippin." It is an Autumn variety, ripening in the latter part of October; is quite as large as the Rhode Island Greening, and for flavor, beauty and the table, ranked among the very best varieties.

Mr. Goodale, of Maine, thought it was an unrecognized English variety, introduced by Mr. Vaughan. It was a superior variety. Placed on the list for trial.

Mr. Barry called attention to the Benoni apple, a New England variety. It has been much cultivated, but there has not been much said about it.

Mr. Walker's experience led him to be in favor of the Benoni. It originated some years ago in the neighborhood of Dedham. He should have no hesitation in saying it was a very good variety.

Mr. Prince received the Benoni from the late Mr. Manning, as the best variety he had seen, and he (Prince) had found it so. He thinks it eminently worthy of general cultivation. It was placed on the list which promise well.

Col. Little, of Maine, called attention to William's Favorite. It was the unanimous opinion of the convention that it was a superior apple for general cultivation—with this qualification, it does not flourish on light soils.

Mr. Townsend wanted the opinion of the convention as to the best winter sweet apple for cooking. There was a general expression that the Danvers Winter Sweet was a most desirable variety.

Mr. Saul never saw any apple equal to the Ladies' Winter Sweet.

Mr. Walker's experience led him to place the Ladies' Winter Sweet in the very first rank.

The President had seen it in bearing in Massachusetts. The tree was loaded with fruit as thick as onions on a string.

Mr. Manning would like to see it in the promising list.

The convention gave a unanimous opinion that this variety is the best winter sweet apple in cultivation.

B. F. Cutter, of New Hampshire, spoke of an apple in Hillsboro', called John Sweet, which he esteemed very highly, and he regarded it as the best late keeping sweet variety he ever saw.

Mr. Prince, of New York, remarked in reference to the Newton Pippin, that two distinct and very dissimilar varieties are cultivated under the same name—the Green Newton and the Yellow Newton. The first has a rough bark; the other has a smooth bark, and is very thrifty, while the Green is unthrifty.

Dr. Wight called attention to the Ledge Sweeting, a seedling from Portsmouth, which he had no doubt would prove as good a variety as the Ladies' Winter Sweet.

Mr. Wilder regarded the Ledge as a most remarkable apple.

Mr. Barry, of New York, spoke of the Belmont apple as a very popular variety in Northern Ohio and Western New York. It is an early winter apple of large size. It fails in Illinois.

Mr. Manning had grown a few specimens, and they promised well for a good apple.

Mr. Manning called attention to the Garden Royal apple as a very superior variety, but, as it is a small grower, he would not recommend it for orchard cultivation; but, for garden, he esteemed it as one of the most desirable sorts that can be cultivated. It ripens in the latter part of August.

The President confirmed the remarks of Mr. Manning. The Garden Royal stood, in his estimation, among the best. It was recommended as good for gardening.

The discussion of apples was closed.

Mr. Prince, of New York, offered the following resolutions, which were laid on the table:

Resolved, Tnat we appreciate the wisdom and beneficence of the Creator in placing within the boundaries of our country, eight distinct species of the grape, and innumerable varieties; thus providing means for the resuscitation of the human system, by the most delicious fruits and gently exhilarating beverages.

Resolved, That whilst we deprecate the use of all alcoholic liquids, and of the adulterated wines that are poured upon our shores from the Eastern Hemisphere, we cannot refrain from urging upon Americans the general culture of the grape, and the formation of extensive vineyards, in order thereby to diminish importations, increase the national wealth, and, above all, to furnish an ample supply of pure *American wines* as the most sovereign preventive of intemperance.

Laid on the table.

Mr. King, of Massachusetts, offered the following resolution:

Resolved, That the models of fruit prepared by Mr. Townsend Glover, of Fishkill, N. Y., excel all others of the kind that have come under our notice;—that they are calculated to serve a very important purpose, in presenting perfect specimens for examination at all seasons and from all sections of the country; and that we respectfully recommend to the Congress of the United States to employ Mr. Glover to prepare (under the direction of a commtttee to be appointed by this Society,) a full collection of the fruits of the country, to be deposited in the Agricultural Department of the Patent Office at Washington.

After remarks from several gentlemen, the resolution was unanimously adopted.

Pears suited for cultivation on quince stock were next considered.

Mr. Barry, of New York, remarked that he had seen it stated in several newspaper paragraphs, that the cultivation of the pear on quince stocks had proved to be a failure. He regretted to have such statements sent abroad. They are not correct. He considered it a great blessing to the country that pears could be cultivated on quince stocks, because it enabled thousands upon thousands of our citizens to enjoy delicious varieties of fruit years earlier than they otherwise could. Perhaps the best way to check this erroneous impression would be for the Society to recommend a list of pears that succeed best on quince stocks. He had prepared a brief list of sorts, and would submit it for the consideration of the meeting. All the pears here enumerated were not, indeed, of the best quality, but they have been successfully proved on the quince. Before giving the list, he would say that the best quince stocks were the Fontenay and another variety. The common apple or orange quince of this country, is not a suitable stock for budding. It may grow well for one or two years, but will ultimately fail.

Pears for cultivation on quince stocks:—Rostiezer, Beurre d'Anjou, Beurre Diel, Duchess d'Angouleme, White Doyenne, Louise Bonne de Jersey, Fig d'Alencon, Urbaniste, Easter Beurre, Glout Morceau, Pound, Caltilac, Vicar of Wakefield, Napoleon, Beurre d'Amanlis, Beurre d'Aremberg, Soldat Laborer, Beurre Langelier, Long Green of Cox, Nouveau Poiteau, and St. Michael Archange.

The list was adopted by the Society.

Cherries were next considered. Governor Wood, Black Hawk, Kirtland's Mary, Rockport Biggareau, Ohio Beauty, and the Hovey were placed on the list of varieties which promise well.

Mr. Cabot, of Massachusetts, introduced for the consideration of the convention, the seedling cherry of Capt. George Walsh, of Charlestown. There were, he said, claimed by Mr. Walsh, three varieties, ripening at intervals of one week from each other, but they were so much alike, he (Mr. Cabot,) could see no difference in them. He proposed to the Society to call it Walsh's Seedling.

Mr. Walker had been acquainted with this cherry fourteen or fifteen years. When it was first exhibited to the Horticultural Society, there was some doubts as to its being a seedling, from the fact that a Mr. Brown, of Beverly, had exhibited a cherry very similar to it in appearance, which he called the Black Biggareau of Savoy. The Society, however, took so much interest in the question that a committee was sent out to Mr. Walsh's garden, to examine the trees and see if they were budded. He, (Mr. Walker,) was on that committee, and they came to the conclusion that the trees were not budded. The fruit is large, black,—equal in size to the Black Tartarian—firm flesh, excellent flavor, and quality A No. 1.

Quite a discussion ensued, during which it was contended by Mr. Prince that the cherry in question was not a seedling, and by Mr. Hovey that its true name is the New Black Biggareau.

The Society adopted the name of "Walsh's Seedling," and placed it in the list of sorts which promise well. The Great Biggareau of Downing was placed in the list which promise well, and Sparhawk's Hovey was passed by.

Strawberries were next taken up. Burr's New Pine was placed in the list recommended for certain locations, Walker's Seedling in the list which promise well, Imperial Scarlet and Scarlet Magnet were passed; Jenny's Seedling was recommended for certain locations.

Plums were next in order. The McLaughlin and Reine Claude de Bavey were put in the list for general cultivation.

Italian Prune or Fellenberg, a tree of remarkable vigor, very productive and holding its fruit in spite of the curculio, was passed for the present.

Ives' Washington Seedling was placed in the list which promise well.

Raspberries. Mr. Cabot moved to strike the Red Antwerp variety from the list. He believed it to be a good variety, but there were so many other sorts better, it was not worth while to retain it.

Mr. Lines, of Connecticut, thought the Red Antwerp fully equal to the Franconia. Mr. Prince regarded it as one of the most splendid fruits ever placed on any table. Mr. Saul said it was the great raspberry of New York, and he was astonished to hear the gentleman from Massachusetts say anything against it. Mr. Cabot said as there might be some mistake about the true name, he would withdraw his motion.

Knevitt's Giant was taken from the list which promise well, and recommended for general cultivation as a hardy, delicious variety, a good bearer, and far ahead of all others.

Dr. Brinckle's Seedlings, the Orange, French, and Walker varieties, were placed on the list which promise well.

The President stated that the Orange was the most beautiful sort he ever tasted.

Lawson's Rochelle Blackberry was highly recomended; the fruit is very large. Not so much acidity as in other sorts, delicious flavor, sweet and pleasant.

Mr. Prince considered it a remarkable acquisition.

When the subject of Nectarines was introduced, Mr. Hooker, of New York, said it had been doubted whether nectarines could be produced from peach stones. He would say that he planted stones of the Early York variety, and the produce from them was more than half nectarines. He had picked the Early York peach as free from bloom as the nectarine itself.

Grapes.—The Diana was placed on the list for general cultivation.

The following resolution, which was offered by W. S. King, of Massachusetts, was passed unanimously:

Resolved, That we cordially invite our sister association—The North Western Fruit Growers' Association—to meet the United States Pomological Society in council, at the next biennial meeting, appointed to be held at Rochester, New York.

The business of the convention having been finished, Hon. Mr. Benson, member of Congress of Maine, addressed the Chair. He said he desired to

offer two resolutions expressive of the thanks of the convention for the kindness and hospitality manifested towards the members, by the Massachusetts Horticultural Society, and also their thanks to the President for the urbanity, dignity and impartiality which had distinguished him in presiding over the deliberations of the Society. The first resolution was in these words:

Resolved, That the thanks of the Society are hereby tendered to the Massachusetts Horticultural Society for the excellent arrangements made to receive and accommodate the members of this Society, and for the kind invitation to their beautiful annual exhibition of fruits, flowers and other products of the earth.

Mr. Barry, of New York, said he was unwilling to have the vote taken without saying a few words on the resolution. The Massachusetts Horticultural Society was entitled to the cordial thanks of the convention, for their bountiful hospitality, and for the excellent exhibition to which they had been invited. He had seen many Horticultural exhibitions, both in this country and in Europe, but in tastefulness of arrangement, in interest and instruction, this surpassed all he had ever seen. The display of fruits on the tables was hardly ever equalled in the world. He must say the Horticultural Society was entitled to the thanks of the delegates, not only as citizens, but as pomologists, for what they are doing for Pomology. The enterprise of the members of the Massachusetts Horticultural Society is not equalled in the world.

The resolution passed unanimously, every delegate rising in his seat.

Resolved, That the thanks of the Society are most cordially presented to the President, Hon. Marshall P. Wilder, for the prompt, able and impartial manner in which he has presided over its deliberations; and we hereby assure him that the members will long cherish a lively recollection of the pleasure enjoyed at his bountiful and brilliant festive entertainment with which he complimented the Society.

Mr. Lines, of Connecticut, was unwilling that this resolution should pass with a silent vote. It was due to the gentleman who has presided over the discussions of the Society with so much dignity and ability. He considered that the position in Pomology which the President had reached, conferred more honor upon him than the Presidency of the United States could do. A gentleman who confers such immense benefits upon the whole country—he might say, the world—as Hon. Mr. Wilder does, is entitled to distinguished honors. He hoped this resolution, too, would be passed by a standing vote.

The resolution was unanimously adopted.

President Wilder made the following happy response to the last resolution:

GENTLEMEN:—The resolution which you have just adopted awakens in me feelings of gratitude and affection. The interest which I have ever felt in the prosperity of this Association, has induced me to accept of your suffrages, and to occupy the chair for another term.

I beg to tender you my grateful acknowledgments for your co-operation and support, and to assure you of my unabated interest in the objects of the Society, and in your personal welfare. May you go on, prospering and to prosper, and when we have done cultivating the fruits of earth, may we have the unspeakable felicity to meet in celestial fields, and gather ambrosial fruits from the Tree of Life.

There being no more business before the convention, it adjourned at a quarter past two o'clock, to meet in Rochester, N. Y., in September, 1856.

PITTSBURG HORTICULTURAL SOCIETY.

LIST OF PREMIUMS.

The Committee on Fruits, beg leave to offer the following report as their award of premiums:

APPLES.

Best six fall varieties, five of each, William Cummings,	$4 00
Best three fall varieties, three of each, Thomas Harrison,	2 00
Best five fall varieties, three of each, Hugh McCarty, gardener for D. Holmes,	1 00
Best six winter varieties, five of each, William Cummings,	3 00
Best two winter varieties, five of each, George McHattie, gardener to C. Spang,	1 50
Best three winter varieties, three of each, Thomas Dickson,	2 00
Second best winter varieties, three of each, James George,	1 00
Best large collection, five of each, A. W. Marks,	8 00
Second best large collection, five of each, W. & J. Murdock,	5 00
Third best large collection, five of each, Bockstoce & Ammon,	3 00

GRAPES.

Best half peck Isabella, Bockstoce & Ammon,	3 00
Second best half peck Isabella, Gregory Fearer,	1 50
Best three bunches Isabella, Bockstoce & Ammon,	1 00
Best half peck Catawba, Gregory Fearer,	3 00
Second " " C. L. Gœhring,	1 50

Best three bunches, Gregory Fearer,	1 00
Best collection grown under glass, George McHattie, gardener, to C. F. Spang,	5 00
Second best, grown under glass, J. B. Updike,	3 00

WATERMELONS.

Best three watermelons, George McHattie, gardener to C. F. Spang,	3 00

CITRONS.

Best six green-fleshed, William Cummings,	3 00

ORANGES.

Best six ripe oranges, George McHattie, gardener to C. F. Spang.

PEARS.

Best collection of varieties, five of each, James McCully,	8 00
Second best collection of varieties, five each, John Murdock, Jr.	5 00
" " " " " " Bockstoce & Ammon,	3 00

PEACHES.

Best six varieties, six of each, William Cummings,	3 00
Best three varieties, three of each, R. McKnight,	2 00
Second best " " William Cummings,	1 00
Best collection of varieties, six of each, James McCully,	8 00
Second best collection of varieties, six of each, W. M. Dansen,	5 00
Third best collection of varieties, six of each, Bockstoce & Ammon,	3 00

PLUMS.

Best specimens of choice variety, James McCully,	3 00
Second best specimen of choice variety, Hugh McCarty, gardener to D. Holmes,	1 00
Best collection of varieties, six of each, R. L. Baker,	4 00

QUINCES.

Best twelve fruit, A. W. Marks,	2 00
Second best twelve fruit, James McCully,	1 00

WINES.

Best two bottles Catawba, R. L. Baker,	3 00

FRUIT.

Best general collection, James McCully,	Siver Cup
3d " Bockstoce & Ammon,	$8 00
3d " John Murdock, Jr., 'Horticulturist,' with colored plates, for 1854.	

The Committee would call the attention of the Society, to several varieties of foreign grapes exhibited, though not in competition, by William Holmes, Esq., grown in the open air. They so nearly approach grapes cultivated under glass, that they are with difficulty distinguished, and form a striking instance of what careful culture can effect.

Having thus, to the best of their ability, performed their rather ungracious and thankless task, your Committee beg leave to express their regret, that competitors have felt themselves at liberty to neglect the liberal terms of the competion, which your Committee are bound to follow. The consequence of this is, that exhibitors complain that they are excluded from prizes which the articles are fairly entitled to—and otherwise they are unfairly treated, and the Committee are exposed to censure they do not deserve.

R. L. Baker,
W. Addison,
W. Holmes,
J. Knox,
} Committee.

The Committee on vegetables, beg leave to offer the following report, as their award of premiums:

Best peck Lima Beans, G. Howitt,	$2 00
Second best peck Lima Beans, David Holmes,	1 00
Best Blood Turnip Beets, William Cummings,	2 00
Second best Blood Turnip Beets, David Holmes,	1 00
Best Long Blood Beets, David Holmes,	2 00
Second best Long Blood Beets, George McHattie,	1 00
Best Cucumbers, William Cummings,	2 00
Best White Solid Celery, John T. Logan,	3 00
Second Best White Solid Celery, George McHattie,	1 50
Best three heads of Cabbage, John Cummings,	2 00
Second best three heads of Cabbage, G. Howitt,	1 00
Best six Red Carrots, John Cummings,	2 00
Second best six Red Carrots, W. C. Dunn,	1 00
Best six White Carrots, D. Holmes,	2 00
Second best six White Carrots, G. Howitt,	1 00
Best twelve Ears Table Corn, G. Howitt,	2 00
Second best twelve Ears Table Corn, G. McHattie,	1 00
Best peck Silver Skinned Onions, James Lamont,	2 00
Second best peck Silver Skinned Onions, R. Grierson,	1 00
Best Yellow Onions, James M'Kain,	2 00
Second best Yellow Onions, John Cummings,	1 00
Best twenty-four Pods Okre, G. Howitt,	2 00
Second best twenty-four Pods Okre, George McHattie	1 00
Best six bunches Parsley, George McHattie,	2 00
Second best six bunches Parsley, D. Holmes,	1 00

Best three Pumpkins, W. C. Dunn,	2 00
Second best three Pumpkins, A. Negley,	1 00
Best twelve Parsnips, W. C. Dunn,	2 00
Second best twelve Parsnips, John Cummings,	1 00
Best twelve Peppers, D. Holmes,	2 00
Second best twelve Peppers, G. Howitt,	1 00

POTATOES.

Best Neshannocks, John Cummings,	2 00
Second best Neshannocks, William C. Dunn,	1 00
New variety Peach Blow Potatoes, G. Howitt, E. H.,	2 00
One peck Canada White Potatoes, G. Howitt, E. H.,	2 00
Best Yellow Sweet, John Cummings,	2 00
Second best Yellow Sweet, William Cummings,	1 00
Best Radishes, James Lamont, gardener for J. H. S.,	1 00
Best Salsify, William Cummings,	2 00
Second best Salsify, David Holmes,	1 00
Best Squashes, Fall, A. Negley,	3 00
Second best Squashes, Fall, William C. Dunn,	1 50
Best Squashes, winter, William C. Dunn,	3 00
Second best Squashes, winter, William Cummings,	1 50
Best Tomatoes, William C. Dunn,	2 00
Second best Tomatoes, William Cummings,	1 00
Best Vegetable Egg, R. McKnight,	3 00
Second best Vegetable Egg, William C. Dunn,	1 50

For the best collection of Vegetables, Gerald Howatt, Silver Cup; Second best, David Holmes, $8; Third best, William C. Dunn, $4.

The Committee desire to commend, as worthy of extensive culture, the California Oats, with stalks fifteen inches long, sent by James Gracey, late of Pittsburg, exhibited by John Gracey.

A. B. McQuewan,
M. B. Brown,
C. L. Goehring.
} Committee.

The Committee on Plants and Flowers award the following Premiums:

ACHIMENES.

For the best six varieties in Flowers, George McHattie,	$3 00
For the second best six varieties in Flowers, James George,	1 50

ASTERS CHINA.

For the best collection in Pots, G. G. Negley,	2 00
For the second best collection in Pots, James McKain,	1 00

FUCHIAS.

For the best six specimens in Flowers, George McHattie,	3 00
For the second best specimens in Flowers, James George,	1 50

SPECIMEN PLANTS.

For the best twelve varieties in Flowers, George McHattie,	5 00
For the second best twelve varieties in Flowers, James Lamont,	3 00
For the best six varieties in Flowers, George McHattie,	3 00
Eor the second best six varieties in Flowers, James McKain,	1 50

PHLOXES.

For the best six varieties, George McHattie, - - - 2 00

ROSES.

For the best six cut varieties, George McHattie, - - - 2 00
For the best display in Pots, James McKain, - - - 4 00
For the second best display in Pots, James George, - - 2 00

SALVIAS.

For the best specimens in Flowers, George McHattie, - - 3 00
For the second best specimens of Flowers, James Lamont, - 1 50

VERBENAS.

For the best twelve varieties, in Pots, of Flowers, James Lamont, - 3 00
For the second best twelve varieties, in Pots, of Flowers, George McHattie, - - - - - - - - 1 50
For the best six varieties, in Pots, of Flowers, James George, - 2 00
For the second best varieties in Pots, of Flowers, James McKain - 1 00

PLANTS.

For the best collection, George McHattie, - - - 8 00
For the second best collection, James Lamont, - - - 6 00
For the third best collection, James McKain, - - - 4 00

The Committee take pleasure in saying, that George McHattie (gardener for C. F. Spang,) James Lamont, (gardener for J. H. Shoenberger,) James George, (Gardener at Mount Union Cemetery,) deserve the greatest praise for the care taken of the plants exhibited on that occasion. Considering the hot season, and long continued drought, the variety is certainly much greater than we had reason to expect.

H. L. Ringwalt.
R. J. Kennedy.
Jas. Reed.

The Committee on Designs and Bouquets award the following Premiums.

To Miss Margaret Murdoch for the best decorated Design, - $5 00
do do do 2d do - - 3 00
Mr. Kennedy for the best Evergreen Wreath. - - - 4 00
Jas. Lamont do Basket with Flowers, - - - 3 00
Miss Ellen Murdoch for the best Dish do - - - 3 00
Jas. Lamont for the best pair round hand Bouquets, - - 2 00
Miss E. Murdoch 2d do do - - - 1 00
Jas. McKain for the best flat hand Bouquet, - - - 2 00
do 2d do - - - - 1 00
do for the best table do - - - - 3 00
do do bridal do - - - - 2 00
Miss E. Murdoch 2d do do - - - - 1 00

Miss Margaret Murdoch merits the greatest praise for the beautiful Evergreen Gothic Monument, also, the Evergreen Spiral Design, imitating a staircase, both of which are made of moss, and ornamented with flowers.

H. L. Ringwalt.
R. J. Kennedy.
Jas. Reed.

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CERATOSTEMA LONGIFLORUM Lindl

THE FLORIST
AND HORTICULTURAL JOURNAL.

CERATOSTEMA GRANDIFLORUM.

COLOR PLATE

COLOR PLATE
INTENTIONAL SECOND EXPOSURE

CERATOSTEMA GRANDIFLORUM.

THE FLORIST
AND HORTICULTURAL JOURNAL.

CERATOSTEMA GRANDIFLORUM.

Vaccinieæ.—Decandria-Monogynia.

Charact. Gener.—*Calyx* herbinatur 5-gamosepalus, semi-adhærens, limbo 5-partito, partitionibus liberis magnis ovato-lanceolatis acuminatis marescentibus. *Corolla* plerumque magna, crassa, subcoriacea, tubulosa, subconica, nervosa 5-gamopetala, apice breviter angulata, limbo 5-fido, laciniis acutis erectis vel reflexis. *Stamina* 10, epigyna, recta, corollae longitudine, inclusa. *Filamenta* brevia, compressa, linearia, supra basin extus hirta, pilis rufis retroflexis subcoalita. *Antheræ* longissimæ, biloculares, loculis basi liberis, medio coalitas, adnatis, superne liberis in tubulos longe productis, poro obliquo oblongo apice dehiscentibus. *Discus* epigynus, liberus, annularis. *Ovarium* semi-adhærens, subherbinatum, truncatum, punctis decem excavatis staminum insertionibus respondentibus notatum, e carpellis 5-coalitas 5-loculare. *Stylus* cylindricus rectus. *Stigma* subcapitatum 5-striatum obsolete pentagonum. *Bacca* turbinata, subglobosa interdum obscure pentagona, superne truncata, limbo calycino et disco siccis marcidis coronata, subumbilicata, 5-locularis, loculis polyspermia. *Semina* plurima minima, obovata ossea.—*Frutices* Peruviani, *sempervirentes. Caules erecti, ramosissimi; rami patuli. Folia integra breviter petiolata. Flores spicati, terminales vel axillares,* 1-*ni* 2-*ni* 3-*ni* 4-*nique, bracteolis* 2 *supra basin cincti, florentes primum erecti, dein cernui, tandem fructiferi erecti. Gemmarum squamæ, bracteæ racemi, calyces, corollæ et baccæ rubicundi coloris.—Fructus ob saporem acido-dulcem Americani jucunde comedunt. Flores incisos ad acetariorum ornatus et saporis acidi gratia adhibentiæ.*

Charact. Specif.—"C. ramis junioribus pubescentibus, foliis brevissime petiolatis parvis coriaceis ovali-cordatis utrinque punctulatis marginibus revolutis integerrimis, floribus nutantibus, subterminalibus præcipue in axilis foliorum solitariis nunc aggregatis, pedunculis vix folia superantibus calycibusque pubesentibus, corollis amplis suburceolato-cylindraceis calycem quintuplo superantibus limbi lobis 5 patentibus." Hook.

Ceratostema grandiflorum, Ruiz et Pav. Icon. ined. t. 383$_{a}$.—Dunal in DC. Prodr. VII, p. 553.

Ceratostema longiflorum, Lindl. in Garden. Chroniel. 1848, p. 87 cum icone.—Fl. des serr. IV. p. 346$_{a}$ cum icone xylograph.—Klotzsch in Linn. XXIV. p. 68.—Hook. Bot. Mag. t. 4479. (Icon hic iterata.)

The beautiful plant which we figure this month belongs to the Vaccinium section of the large and much cultivated family of *Ericaceae* or Heaths.

It was found growing at an altitude of 12,000 ft. above the level of the sea, on the Peruvian Andes, by Mr. M. W. Lobb, collector for Messrs. Veitch of Exeter, England. Dr. Lindley described the plant as a new species under the name of Ceratostema longiflorum: but when it was exhibited in flower at Chiswick in the summer of 1853, it was found to be identical with the C. grandiflorum of the Flora of Peru.

"It forms" says Dr. Planchon, in the Flore des Serres, "a rather small bush, flowering when less than a foot high, having numerous branchlets, stiff and straight, with dense persistent coriaceous foliage of a handsome green, and magnificent tubular campanulate flowers, gracefully pendant, with a scarlet corolla more or less shaded with orange, of a semi-coriaceous, waxy consistence. Altogether it is an admirable acquisition for the green-house or conservatory, and perhaps, in certain parts of Europe, for the open air." It will therefore probably prove hardy in this country south of Virginia. It has not yet, we believe, been introduced to this country.

MILDEW IN GRAPERIES.

BY PROFESSOR S. S. HALDEMAN, A. M.

It is well known that Mildew and similar vegetation arises from a superabundance of moisture, and the absence of light, of which the latter is the least important in the consideration of the subject. The presence of too much moisture, independently of the fact that it facilitates the growth of parasitic vegetation, is injurious to many plants, by retarding the evaporation which their economy requires. The presence of Mildew may cause the fruit to drop prematurely, as it constitutes a disease which penetrates to the inner parts of the fruit.

As much of the moisture in a green-house comes from the plants themselves, it is evident that ventilation is of great advantage, and it is accordingly, freely resorted to. Ventilation is, however, of little use in checking the growth of Mildew, when the external atmosphere is as damp as that within the grapery for a week or two at a time.

In looking for a remedy, we must be acquainted with the circumstances upon which the deposition of moisture depends. In a succession of warm days, the air takes in solution, as much water as it can hold at a given temperature, and if the temperature is increased, it is able to dissolve a farther portion. If, on the other hand the saturated air should be cooled, the water it holds in solution must be given up, when it appears as a fog, a dew or a rain. The highest point of temperature at which dew will form on the outside of a cooled vessel, is the dew point; and its distance below the ordinary temperature, is in proportion to the degrees of the air. When rain is actually forming, the dew point coincides with the temperature of the weather, whilst in a drier atmosphere, it may require a cup of water to be cooled ten, twenty, or more degrees before dew will be deposited upon the surface of the cup.

On a clear day when the themometer is ranging from 70 to 80 degrees, an experiment may exhibit dew at 60 degrees; and if the temperature of the nights at the season of trial, be as low as 60 degrees, dew or moisture will be deposited as well inside as outside of the grapery. Should the night temperature not be less than 62 degrees, in this case, there will be no excess of moisture. During the season when artificial heat is not required to protect tender plants from frost, spring or well water will be found sufficiently cold to indicate the point of the deposition of moisture, in most cases where a small reduction of temperature would cause its presence in the grapery.

The dew point may be taken with a themometer, a tin or thin metal cup of water, care being taken if the moisture deposits readily, to let the temperature of the water rise as near as possible to that of the air, consisently with getting the moisture, and as the temperature rises, the moisture should be wiped off from time to time, that the experimenter may observe the highest temperature at which it will appear: since it is evident that if dew will deposit at 60 degrees, it will do so at 50°, 40° or any lower temperature, although it may not appear at 62 degrees.

These considerations lead us to the remedy, namely, artificial heat at any period of the year, or day, when a slight fall in the temperature is accompanied by moisture enough to cause a deposition of a dew. But as heat both increases, and the capacity of the included air for moisture, the inner air might become more moist than the outer, and on this account there must be *ventilation* as well as heat, and the latter may be made to furnish the former.

As in most cases, a very few degrees above the ordinary temperature is sufficient to prevent the deposit of moisture from the air, a small movable stove would answer very well, and this might be placed in the middle or at one end according as the proper circulation of the warmed air would depend upon accidental circumstances, as the course of the wind. It would not be difficult to devise a structure with an arrangement to secure the proper warmth, circulation of air and ventilation. Paving and even flooring the

walks &c., would not prevent the evil, because evaporation from the ground is not the chief source of moisture.

By a judicious arrangement of the sources of artificial heat and proper exit flues near the floor, but connected with chimneys, the proper amount of dryness and circulation of the air could be secured at all seasons.

Inside walls, particularly of massive stone buildings, from the before mentioned cause, are subject to *sweating*, and this may be prevented by a little fire, as in the United States Patent office, where a furnace sends up heated air at all times. Museums and libraries should be protected from mould in the same manner.

GESNERA ZEBRINA AND GERARDIANA.

Like the Achimenes picta, to which they are closely allied, these magnificient stove plants are ever welcome in or out of flower. When well done, few plants have a richer appearance than the *G. zebrina*, with leaves of the richest velvety green, and elegant zebra-like markings, gracefully drooping downwards over the pot; it is always, while in a growing state, a splendid object; when the flowers are rising perpendicularly in long panicles from the centre of each stem, and in high cultivation, often from the axils of the leaf, with colors of deep red and orange, it is a grand object.

The G. gerardiana is a variety of the other without its zebra markings, leaves velvety with several tints of light green; it is somewhat more robust in habit, with flowers similar in color. It is good as a variety in foliage, and is somewhat more easily grown than the original type.

There is not much difficulty in getting it to flower at any season of the year, by starting it at different times, but it is as an autumn and winter blooming plant, it is mostly admired. It has large scaly under-ground tubers similar to the Achimenes, which increase sufficiently fast to make it unnecessary to resort to other methods of reproduction.

For autumn and winter flowering, early in March, prepare pots, or pans of light porous soil, filled to within three inches of the top, place the tubers pretty thick on this, and cover with two inches of soil; give the whole a watering to settle down the soil, after which, they should receive but little water till they commence growing. They now require to be placed in a warm growing atmosphere of 60 or 65 degrees; if a slight bottom heat, so much the better.

As soon as the plants have made two or three inches of growth, they should be shaken out of their pots, parted, and repotted into three-inch

pots, and placed again in a warm growing atmosphere. The next point to be considered, now is, the sort of plants it is wished to grow, whether single plants grown as fine specimens, or as dense bushes with several plants in a pot. Either way looks well, and our practice is to grow some each way for the sake of variety.

As soon as the plants become well established in their three-inch pots, they are in a condition to shift into their blooming pots; for when once fairly started, they should never receive a check, but be kept steadily growing all the summer. The plants like good drainage, so that, in keeping them moist during the summer, which they like, no stagnant water may settle about the roots.

One-sixth of the pot is none too much for drainage, placing first, a piece of crock over the bottom, around and over this, some large pieces, then some finer, finishing with a layer of small pieces of charcoal, and some rough pieces of turf, to keep the mould from filling in to the crocks.

The soil may be turfy loam one-fourth, fibry, and if sandy peat, so much the better, two-fourths, and rotten manure and sand to make up the remainder. Fill the pots with soil to within a few inches of the top, according to the length of the plant, placing each just so deep as that the bottom joint of leaves touch the soil. For single plants, large specimens, use nine-inch pots, for bushes, twelve-inch pots, placing five plants in a pot, the strongest in the centre. Water to settle the soil, and prepare a frame, which is best for them during the summer, having a thick coating of coal ashes at the bottom, to keep down worms and afford a moist cool place for the pots to rest on. While here, they should have ample room for their foliage to expand; keep moist and rather close in the day, especially, when the atmosphere is dry, giving air freely on still warm evenings.

Soon after midsummer, they will have acquired a large size, and may be removed to the stove, and for the single plants, the tops taken out; though, if not topped at all, grown in this way, they will throw out a quantity of flower spikes up the stem. We have plants now grown this way, from *two* to *three* feet diameter, a dense bush of foliage, some of the leaves of gerardiana measuring nine inches, the flower spikes just making their appearance.

As soon as the plants exhibit signs of turning yellow, which they will do after the flowering is nearly over, water should be gradually withheld, until they are quite died off, after which, they require only to be kept dry under the stage till time for starting them again.

EDGAR SANDERS,
Gardener to John F. Rathbone, Esq.

Albany, Oct. 9th, 1854.

SOME PRINCIPLES OF VEGETABLE PHYSIOLOGY, BEARING ON THE CULTURE OF PLANTS.

BY PROFESSOR W. H. DE VRIESE, OF THE UNIVERSITY OF LEYDEN.

(Translated from the Dutch.)

A plant cannot live, but much less grow, by means of water only; however, water performs here a very important service, for it conveys much of that which must be a means of nourishment to the plant. The substances under ground, whether they have their origin from dissolved remains of plants or animals, or are of an earthy nature, contribute, in fact, to the formation and development of the plants substances which are found in ashes of burned plants. Potash and soda, *e. g.*, form a principle of the composition. The former substance is prepared in great quantities from wood ash: the soda is manufactured from many plants found on the seashore. Lime, one of the substances which are most scattered through the whole of nature, is likewise present in almost all plants. Investigation proves to us that in plants, many other substances known to us as solid bodies exist; the water dissolves those substances either as such or united with other bodies, and so they penetrate the plants. Thus water is chiefly the fluid through which matter is conveyed: but when we observe how great a mass of such substances exists in plants, and how small a quantity of them may be dissolved in the water, if, on account of too great a degree of density, it is not in a state to penetrate the plants, then we must be convinced of the immense quantity of water which must pass through a plant during its whole life, before it has attained its full delopment and finished its whole growth.

If the use of the evaporation to the plant must be measured by the degree in which it takes place, we may be sure that it is indeed of the greatest service to its vegetation. We can prove this by remarkable examples.

At the end of the seventeenth century, an English naturalist, Stephen Hales, wrote a book, entitled "Vegetable Statics," in which he described the following observation: A Sun-flower, which was 3½ feet high, evaporated during a very hot day, 1 lb. 14 oz. of water. The evaporation averaged per day, 1 lb. 4 oz. He observed, that plants with hard wood and evergreen leaves evaporate less than those which fall off, such as Cabbage leaves, leaves of Apple trees, and others. However, it is not easy to make such experiments, for the evaporation of the soil in which the plants are, must not be computed: and if the amount of the evaporated substance is to be exactly determined, it is necessary to enclose the plants. Attention must be paid

to the condition of the tissue of the mass of which the leaves consist. But, above all, the extension of the surface over which the evaporation takes place during a certain time must be known, and also, the exact quantity of water which is required by the root. A thick cuticle, hard like leather, such as is found in succulents, Houseleek, Crassula, and Aloe, evaporates little, and these plants want but little moisture. They grow often on stones and rocks. On the contrary, the more tender the leaves and the thinner their membranes are, the more they perspire; and the greater the number of leaves, the more liquid the stem must supply. The leaf of a Linden tree has a mean size of 0.01 □ metre; the amount of both surfaces is thus, 0.02 □ metre. If a Linden tree has 25,000 leaves, the amount of all the leaves makes a surface of 500 □ metres, consequently, 2,000 trees make a surface of 593 □ miles, or the extent of the kingdom of the Netherlands.

We readily confess, that this calculation may not be precisely correct, or it may be even exaggerated. We allow, that to detrmine the number of leaves can be only an approximation. Yet, we dare pretend that many a tree has half a million of leaves, and that the extent of the leaves of many a large well-wooded estate surpasses that of the whole Netherlands. If, after these consideration, we remark how luxuriant nature is between the tropics, how gigantic are the trees, how luxuriantly the plants grow under those huge trees, and how elevated is the temperature, then it may be explained why there is an incessant dampness in those forests, on account of which they are often impenetrable; and, in what is their relation with the state of the atmosphere, on account of the continual evaporation on the surface. It would require a series of experiments to determine the quantity of moisture evaporated by a single tree. What we can say of it now rests greatly on an approximation, for the foundation of which an experiment was made on another plant many years ago. If each Linden leaf evaporates from June to October, during 137 days, the 5,000th part of a pound of water, the mass of liquid which passes through a tree, covered with 25,000 leaves, is of 171½ cubic metres. This approximation must be, however, far beneath the truth.—*Gardeners' Chronicle.*

ORCHARD HOUSES.

Mr. Rivers' Nursery, Sawbridgeworth.—One of the most interesting features of this nursery is its orchard houses, of which there are no fewer than 25. Mr. Rivers has found such contrivances so extremely useful, not only for the growth of small fruit trees in pots, but also for a variety of

other purposes besides, that he has during these last two or three years been constantly adding to their number. His fruiting house this year has been, as it well deserved to be, the admiration of all who have seen it. It is span-roofed, 70 feet in length and 20 feet in width, with boarded sides and ends, and fixed glass roof, and it has upwards of 100 trees of Peaches and Nectarines from four to six years old in it, many of the later kinds being now literally laden with fruit. As an example of the way in which the trees have borne, we may mention that on one of them we counted between four and five dozen Peaches. The effect of a whole house full of such fruit-bearing trees may therefore be more easily imagined than described.

The trees are all in 13-inch pots, and are set on beds of soil; the centre one being about 6 feet in width, and the two side ones each 5 feet in width. These beds contain about 18 inches in depth of mould, which is kept out of the paths by brick edgings. The pots, which have several holes in the bottom, or at least have their holes very much enlarged, are set on these beds, into which the roots are allowed to enter. To sustain a good sized Peach tree in a pot, however (and some of them are 4 or 5 feet in height), something more is necessary than merely allowing its roots to go into the border; annually in March, therefore, every tree has a top-dressing of some stimulant. Mr. Rivers has employed with much success, stiff loam mixed with horse-droppings mixed with night-soil, exposed to the air two or three months, placed on the surface of the pots, previously stirring the soil with a pointed stick, and taking out a portion of it 2 or 3 inches in depth. Liquid manure, not too strong, is also applied once a week during the summer; weak guano water, 1 lb. to 30 gallons, has been found as good as any. A good soaking of this once a week has been found preferable to using it more frequently. Under this kind of treatment the trees are kept in the very best of health, and they bear, as has just been shown, enormous crops of fruit and their being in pots which permit them to root into the beds, the control over them is perfect, for when any tree becomes at all what is termed pot proud, its luxuriance is easily checked by merely inclining it on one side sufficiently to break off a portion of the roots. At the end of October, when the trees are put to rest, the whole of them are root-pruned, *i. e.*, all the roots which have entered the bed are cut off, and after two or three years the soil of the bed or border itself is removed 2 or 3 inches in depth, and filled up with a compost of burnt earth, manure, 1-inch bones, and turfy loam, all very rough. During winter the trees are kept as dry as possible, and sometimes, if the weather then is excessively severe, dry hay or litter is laid on and around the pots. This, however, is seldom needed.

No fire heat is employed, indeed no means have been provided in the fruiting house for applying it; and yet, with the exception of the Stanwick Nectarines, and one or two of the latest Peaches, all have ripened most satisfactorily, the fruit—owing to the health of the trees and foliage, and the abundance of ventilation which is afforded—being large, juicy, highly colored and, as a matter course, of extremely good flavor. Such as have not yet ripened, Mr. Rivers intends putting into another house, in which a little fire-heat will be applied just to gently accelerate their maturity.

One of Mr. Rivers' orchard houses, also a span-roofed one—instead of having boarded sides and ends, with means of giving plenty of air, for that is much insisted on in this kind of culture—has the sides, one a Yew hedge the other Siberian Arbor-vitæ. It is 12 ft. wide, 3 ft. high at the sides, 6½ feet high in the centre, with a sunken path 2 ft. wide, 1 foot deep, and borders on each side 5 ft. wide. An improvement, however, on this, Mr. Rivers thinks, will be one of the following dimensions—12 ft. wide, 4 ft. high at the sides, 8 ft. high in the centre, borders 4 ft. 8 ins. wide, sunken path in the centre, 2 ft. 4 ins. wide, and 8 or 10 ins. deep; this, with a well-clipped hedge of Yew or Siberian Arbor-vitæ on each side, will ripen such Peaches as Royal George, Noblesse, and Grosse Mignonne, about a fortnight after their usual period of ripening, and give Apricots, Cherries, and Plums (more especially the late sorts, which shrivel on the trees), in the highest perfection. Owing to the constant percolation of air through the hedges, no injury ever occurs from ventilation (as is too often the case) being forgotton in hot weather; but with syringing and water the trees are always in fine health. The situation for such houses should not be too much exposed in windy situations, for then too much air may perhaps be admitted for ripening fruit. Peaches and Nectarines, however, appear to succeed perfectly in a house made of good deal boards, and the latter well painted with Carson's anti-corrosive paint, will last good a long time. It has been found, however, that, in the case of *lean-to* houses against a Beech hedge, the cutting north-east winds which pass through the latter in spring are too much for the trees, and, therefore, the few earlier put up houses which Mr. Rivers has on this plan have had painted canvas put along their back walls or hedges, half the height of the latter. This has been found to answer perfectly, and it may be worthy of mention to show the effect good ventilation has in keeping off the mildew and red spider, that when the canvas covered all the back or hedge, these pests made their appearance; but as soon as half the canvas was removed, and air freely readmitted, they disappeared.

Gard. Chron.

REMARKS ON THE COMPARATIVE MERITS OF POROUS AND GLAZED FLOWER POTS.

BY THE FOREMAN OF A LONDON NURSERY.

THE construction of garden pots having of late been a subject of some public interest, and opinions having been advanced, which, to say the least in their favor, have novelty on their side, it becomes a matter of importance to watch rather closely the arguments which have been advanced in their support, in order that some idea may be formed of the nature and extent of the claim which they have upon the attention of the cultivator.

As far as regards the shape and proportions which are recommended, I think them the best that can be devised, whether their usefulness or elegance be taken into consideration; but as regards the other particulars of their construction, I am inclined to believe, that however plausible the arguments may be which are brought forward in their support, there will be many obstacles to hinder their adoption. I do not think that the objection urged against porous pots on the ground of their absorbing qualities, which would afterwards prove deleterious to plants placed in them, has much force; for, supposing and allowing, as has been remarked in a previous number, viz., that of the stinking roots of an Acacia,—allowing that in this instance the effect would be injurious, it must at the same time be borne in mind that not one in a hundred of the plants cultivated in pots impregnate those pots with any unpleasant smell; and in the case of those which are so circumstanced, if laid by for a time and exposed to the action of the weather, the objection would be entirely groundless.

The objection that the pots in common use are inelegant and unpicturesque, may have some force when they are placed in situations intended as decidedly ornamental. So far the glazed pots recommended by your correspondent, "Londinensis," might be deemed preferable.

He further remarks, that "as regards nursery and forcing departments, where pots are little seen except by workmen, the common porous flower-pot may answer;" so that here is a plain admission that it is not to their use for the purpose of culture, but in an ornamental point of view, that he objects to the use of porous pots. "For the finer ornamental plants," he continues, "whose habits require compost and treatment almost as various as the countries they come from, it is necessary that the pot should be as clean as a drinking-cup, so as in no way to interfere by admixture of its properties with the compost proper for the plant." This, although sounding very plausible to the ear, I cannot regard as having any weight as an

argument, believing that if decency and cleanliness are strictly kept in practice, as they ought to be, there is nothing in the ordinary use of pots which can be absorbed so as to contaminate the soil which might afterwards be placed within them, to the injury of even the most delicate-rooted plants.

As regards the objection to placing the roots of various plants, originally inhabitants of earth, air, and water, all promiscuously in contact with burnt clay, very little of reflection will be sufficient to convince any one that the same remarks would apply equally to any other kind of pots, whether glazed or otherwise.

The use to which glazed pots seem most applicable, by the nature of their composition, is that of the cultivation of aquatics, and bog or marsh plants; the effectual prevention of evaporation through their sides and bottom, would, in all probability, render them well adapted for these kinds of plants, and, in this respect, the use of crockage as drainage might also, in all probability, be readily dispensed with.

One objection to glazed pots, in the culture of many kinds of plants, even if there were no other with which to oppose them, is the smoothness of their inner surface; any one who has paid attention to the rooting of plants in pots, must be aware that many kinds delight to root amongst the broken crockage, and about any irregularity of surface in the pot: this would appear to have some assimilation with the fissures of rocks, in which it is known that some kinds delight to root; and, if this be the case, the smooth glazed pots, and the absence of all crockage, as recommended, might render them still less valuable.

The great objection, however, to glazed pots, is the simple fact that they are *not porous*, and this brings me to notice briefly, the advantage of those in common use over the those recommended by "Londinensis." The air is composed of certain gases, which are taken up by and are the food of plants; these gases are absorbed in various forms, both by the roots and leaves of plants. and therefore it is that, in a certain degree, atmospheric air is as necessary to the spongioles as it is to the foliage of the vegetable race; hence the deep burying of the roots of trees, which is found to be injurious, and is accordingly deprecated; and hence it is, also, that in the culture of those trees in which horticultural science is more immediately concerned, we find shallow borders *now* recommended, and the roots to be disposed in such a position as to be near the surface of the soil; the reason of this is, that the air may penetrate the soil sufficiently to reach the spongioles, so as to be taken up by them as food. In the culture of plants in pots, the porosity of the sides of the latter will permit the atmospheric

air, composed of vital gases, to penetrate through into the soil, and thus the healthiest roots are always found in contact with the pot; but in the case of glazed pots, this percolation could not take place, and the surface of the soil alone would be exposed in any degree to the action of the atmosphere; consequently the plants would be deprived of a greater portion of their nourishment. This would not be a matter of importance, provided that the roots could extend themselves horizontally to their full extent, as in that case a sufficiency of air would penetrate through the soil; but it must be recollected that the roots of plants in pots are not so circumstanced, but, being checked by coming in contact with the pot, they are obliged to descend, and, therefore, the whole surface of the pot becomes to them an equivalent to the surface soil enjoyed by an unconfined plant. Were it possible to combine in a garden pot the transmission of air through its sides, and yet to check the too rapid evaporation which sometimes takes place, such a combination would be the *ne plus ultra* of pot manufacturing.

Flor. Cab.

OF THE DIRECT RELATION THAT EXISTS BETWEEN THE CHARACTER OF THE SOIL AND THE KIND OF PLANTS THAT NATURALLY GROW UPON IT.

The importance of a minute study of the chemical composition of soils will, perhaps, be most readily appreciated by a glance at the very different kinds of vegetables which, under the same circumstances, different soils naturally produce; in other words, by a glance at their botanical relations.

There are none so little skilled in regard to the capabilities of the soil, as not to be aware that some lands naturally produce abundant herbage or rich crops, while others refuse to yield a nourishing pasture, and are deaf to the often-repeated solicitations of the diligent husbandman. There exists, therefore, a universally understood connection between the kind of soil and the kind of plants that naturally grow upon it. It is interesting to observe how close this relation in many cases is.

The sands of the sea-shore, the margins of salt lakes and the surfaces of salt plains, like the Russian steppes, are distinguished by their peculiar tribes of salt-loving plants—by varieties of salsola, salicornia, &c. The *Triticum junceum* (sea wheat) grows on the seaward slopes of the downs at no great distance from the sea. The drifted sands more removed from the beach produce their own long, waving, coarser grass,—the *Arundo arenaria*, (sea bent,) the *Elymus arenarius*, (sea lime grass,) and the *Carex arenarius*,

(sand sedge,) the roots of which plants bind the shifting sands together. The beautiful sea pink spreads itself over the loose downs—while further inland, and as the soil changes, new vegetable races appear.

The peaty hills and flats of our island naturally clothe themselves with the common ling, (*Calluna vulgaris*,) the fine-leaved heath, (*Erica cinerea*,) and with the cross-leaved heath, (*Erica tetralix.*) When drained and laid down to grass, or when they exist as natural meadows, they produce one soft woolly grass almost exclusively—the *Holcus lanatus.* After they are limed, these same soils become propitious to green crops and produce much straw, but refuse to fill the ear. The grain is thick-skinned, and therefore light in flour. There is a greater tendency to produce cellular fibra, and the insoluble matter associated with it, than the more useful substances, starch and gluten.

On the margins of water-courses in which silica abounds the mare's tail (*Equisetum*) springs up in abundance; while, if the stream contains much carbonate of lime, the water-cress appears and lines the sides and bottom of its shallow beds, sometimes for many miles from its source.

The Cornish heath (*Erica vagans*) shows itself rarely above any other than the serpentine rocks; the red broom-rape, (*Orobanche rubra*,) only on trap or basaltic rocks; the *Anemone pulsatilla* on the dry banks of chalky mounds, as in the neighborhood of Newmarket; the lady's slipper on calcareous formations only; the *Medicago lupulina* on soils which abound in marl; while the red clover and the vetch delight in the presence of gypsum, and the white clover in that of alkaline matter in the soil.

So the red and white fire-weeds, *Epilobium coloratum*, and *Erichtites hierecifolius*, cover with their bright blossoms every open space in North American woods, over which the fires, so frequent there, have run during the previous year. The ashes of the burned trees and underwood are specially grateful to the seeds of these plants, which in vast quantities lie dormant in the soils.

The clays, too, have their likings. The Rest harrow, (*Ononis arvensis*,) delights in the weald, the gault, and the plastic clays, but passes by the green-sand and chalk-soils, by which these clays are separated from each other. The oak, in like manner, characterizes the clays of the weald; while the elm flourishes, in preference, on the neighboring soils of green-sand formation.

Then, again, plants seem to alternate with each other on the same soil. Burn down a forest of pines in Sweden, and one of birch takes its place *for a while.* The pines after a time again spring up, and ultimately supersede

the birch. The same takes place naturally. On the shores of the Rhine are seen ancient forests of oak from two to four centuries old, gradually giving place at present to a natural growth of beech, and others where the pine is succeeding to both. In the Palatinate, the ancient oak-woods are followed by natural pines; and in the Jura, the Tyrol, and Bohemia, the pine alternates with the beech.

These and other similar differences are believed to depend in great part upon the chemical composition of the soil. The slug may live well upon, and therefore infest, a field almost deficient in lime; the common land snail will abound at the roots of the hedges only where lime is plentiful, and can easily be obtained for the construction of its shells. So it is with plants. Each grows spontaneously where its wants can be most fully and most easily supplied. If they cannot move from place to place like the living animal, yet their seeds can lie dormant, until either the hand of man or the operation of natural causes produces such a change in their position, in reference to light, heat, &c., as to give them an opportunity of growing—or in the composition and physical qualities of the soil itself, as to fit it for ministering to their most important wants.

And such changes do naturally come over the soil. The oak, after thriving for long generations on a particular spot, gradually sickens; its entire race dies out, and other races succeed it. Has the operation of natural causes gradually removed from the soil that which favored the oak, and introduced or given the predominance to those substances which favor the beech or the pine? On the light soils of the state of New Jersey the peach tree used to thrive better than anything else, and large sums of money were made from the peach grounds in that state. But of later years they have almost entirely failed. In Scotland, the Scotch fir has been known at once to die out over an area of 500 or 600 acres—and the forests of larch are now in many localities exhibiting a similar decay. This decay is often, I believe, owing to the presence of noxious matters in subsoil, but it is due in some cases, also to a natural change in the composition and character of the several soils, which has taken place since the peach, the fir, and the larch trees were first planted upon them.

In the hands of the farmer, the land grows sick of this crop—it becomes tired of that. These facts may be regarded as indications of a change in the chemical composition of the soil. This alteration may proceed slowly and for many years; and the same crops may still grow upon it for a succession of rotations. But at length the change is too great for the plant to bear; it sickens, yields an unhealthy crop, and ultimately refuses altogether to grow.

The plants we raise for food have similar likes and dislikes with those that are naturally produced. On some kinds of food they thrive; fed with others, they sicken or die. The soil must therefore be prepared for their special growth.

In an artificial rotation of crops we only follow nature. One kind of crop extracts from the soil a certain quantity of all the inorganic constituents of plants, but some of these in much larger proportions than others. A second kind of crop carries off, in preference, a large quantity of those substances of which the former had taken little; and thus it is clearly seen, both why an abundant manuring may so alter the composition of the soil as to enable it to grow almost any crop; and why, at the same time, this soil may, in succession, yield more abundant crops, and in greater number, if the kind of plants sown and reaped be so varied as to extract from the soil, one after the other, the several different substances which the manure we have originally added is known to contain.

So with regard to the organic matter which soils contain. That form of organic food which suits one, may not equally favor another species of plant, and thus, at different times, different species may be most suited to the chemical condition of the same field.

The management and tilling of the soil, in fact, is a branch of practical chemistry which, like the art of dyeing, lead-smelting, or of glass-making, may advance to a certain degree of perfection without the aid of pure science, but which can only have its processes explained, and be led on to shorter, more simple, more economical, and more perfect processes, by the aid of scientific principles.—*Prof. Johnston.*

THE PENNSYVLANIA STATE FAIR.

The fourth annual fair of the Pennsylvania State Agricultural Society was opened on the 26th of September, on the ground selected for the purpose at Powelton, in the 24th Ward.

This is situated on the west side of the Schuylkill, north of Market street, lying between the Pennsylvania railroad and Bridgewater, and embracing over 21 acres. It is very level and was supplied with water from the reservoir of the railroad locomotive depot.

The whole was surrounded by a substantial fence, against the inside of which were erected the stalls for the live stock, the whole of which were occupied.

The buildings within the ground were numerous and large; besides the business and ticket offices, there were three large dining and refreshment halls, and three very large ones for the floral display and for the mechanical departments. A track extended around the entire lot affording a drive of more than a mile, which was generally occupied by a continuous string of carriages. At the northern end was a nearly circular track of a quarter of a mile in length for the show of horses. Several large tents were erected for the display of Agricultural and other products.

During the first two days, the 26th and 27th only those who were members of the Society were admitted, and we certainly have never seen, even in Philadelphia, such a splendid turnout of handsome equipages and fine women.

The Cattle. There was a most notable show of bulls and cows. The most attractive of these as usual were the improved short horns. Selections from the herds of Dennis Kelley, Thos. P. Remington, Christopher Fallon, Anthony Bolmar, Jas. Gowen, Davis Hoopes, and others were very fine.

Mr. Remington showed some very fine Alderney cows, which, however, were in rather indifferent condition, even for Alderneys. The Devons were from the herds of Thos. Hancock, Chauncey P. Holcomb, and others.

Sheep of the Southdown and Merino varieties were exhibited by Aaron Clement and others.

Several Cashmere goats, exhibited by Dr. Davis of South Carolina, attracted much attention; their long fine hair was much examined. It is, we believe, now proved that they can be profitably raised in this country.

Hogs were abundant, fat and dirty.

A large number, twenty span, of working oxen from West Chester were on the ground.

The mechanical display was good, consisting as is usual, of stoves, furniture, machinery, ornamental iron work, patent medicines &c. The show of agricultural implements by Messrs. David Landreth & Son, and Paschall Morris & Co. was very large and various.

The Floral exhibition, considering all things, was good. The plants in most cases were brought a considerable distance, and the dust and exposure to the night air injured their appearance. But there were fine collections exhibited, and in them some new and fine plants.

We noticed fine specimens of *Cissus discolor*, *Coleus Blumei*, *and Begonia xanthina*. In Mr. Knorr's collection was a plant of Gardenia Devoniana, shown in bloom for the first time, with creamy white tubular flowers, nearly a foot long.

We give below the awards of premiums in such departments as may interest our readers:

CATTLE.—No. 1 Short Horns.

Bulls, three years old and upwards.

To Anthony Bolmar, of Chester County, Pa., for his bull "Harry," the first premium of $20.

To William Fernistone, of Easton, Pa., for his bull "Cato," the second premium of $15.

To George Brinton, of Chester County, for his bull "Mars," the third premium of $8.

Bulls, between two and three years old.

To Dennis Kelley, of Philadelphia, for his bull "Lord Barrington," the first premium of $15.

To Thomas Richeson, of Philadelphia, for his bull "Henry Clay," the second premium of $8.

To Davis Hoopes, of Chester County, for his bull———, the third premium of $4.

Bulls, between one and two years old.

To Geo. A. Kreeble, of Montgomery County, for his bull "General Taylor," the first premium of $10.

To James Gowen, of Mount Airy, for his bull "Duke of York," the second premium of $5.

To George Martin, of Philadelphia, for his bull "Strawberry," the third premium of $3.

Bull Calves under ten months old.

To Anthony Bolmar, of Chester County, for his "Charley," 5 months old, the first premium of $5.

To John R. Barton, of Philadelphia, for calf "Woodbine," 4 months old, the second premium of $3.

To Richard Cartwright, of Philadelphia, for his [not named] bull calf, 4 months old, the third premium of $1.

Cows, three years old and upwards.

To James Gowen, of Mount Airy, for his cow "Isabella," the first premium of $20.

To Anthony Bolmar, of Chester County, for his cow "Flora," the second premium of $10.

To Owen Sheridan, of Philadelphia, for his cow "Sally," the third premium of $6.

Heifers, between two and three years old.

To James Gowan, of Mount Airy, for his heifer "Young Lady," the first premium of $15.

To Dr. John R. Barton, of Philadelphia, for his heifer "May Flower," the second premium of $10.

To Thomas P. Remington, of Philadelphia, for his heifer "Beauty Spot," the third premium of $5.

Heifers, between one and two years old.

To David McConkey, of Philadelphia, for his heifer "Rose," the first premium of $10.

To John Clark, of Philadelphia, for his heifer "Kate," the second premium of $5.

To James Gowan, of Mount Airy, for his heifer "Blossom," the third premium of $2.

Heifer Calves under ten months old.

To Thomas P. Remington, of Philadelphia, for his "Donna Maria 4th," the first premium of $5.

To Anthony Bolmar, of Chester County, for his heifer five months old, the second premium of $3.

To Thomas P. Remington, of Philadelphia, for his heifer "Miss Barrington," the third premium of $1.

The following special premiums were recommended by the Committee:

To John A. Sheets, of Berks County, for his bull "Juno," over three years old, $8.

To Adrian Comel, of Berks County, for his bull "Pontiac," over three years old, $3.

To Thomas P. Remington, of Philadelphia, for his bull "Lord Barrington," between two and three years old, $4.

To Willtam Divine, of Philadelphia, for his bull "General Scott," between two and three years old, $4.

To Lewis P. Hoopes, of Chester County, for his bull, between one and two years old, $3.

To Thomas P. Remington, of Philadelphia, for his bull calf, ten months old, $2.

To Joseph Palmer, of Philadelphia, for his heifer "Lucy," between two and three years old, $5.

To Aaron Clement, of Philadelphia, for his heifer "Ellen," between two and three years old, $5.

To the same, for his two heifers "Flora" and "Beauty," each $2—$4.

To the same, for heifer "Duchess," $2.

Mr. Remington's heifers Fanny, 4½ months old, and Flora, 5 months old, are worthy of especial commendation.

No. 2. Devons.—*Bulls of three years and upwards.*

To Morris Longstreth, of White Marsh, Montgomery County, for his bull "Buck," three years and six months old, the first premium of $20.

To C. P. Holcomb, of Newcastle, Delaware, for his bull———, 4 years old, the second premium of $15.

To George A. Kriebel, of Montgomery County, for his bull "Echo," seven years old, the third premium of $8.

Bulls between two and three years old.

To Thomas Hancock, of Burlington, N. J., for his bull "Winchester," two years and six months old, the first premium of $15.

To Aaron Clement, of Philadelphia, for his bull two years old, the second premium of $8.

To Christopher Fallon, of Upper Darby, Delaware County, Pa., for his bull "William Bigler," between two and three years old, the third premium of $4.

Bulls, between one and two years old.

To Aaron Clement, of Philadelphia, for his bull, one year and four months old, the first premium of $10.

To Richard Pim, of Thorndale, Chester County, for his bull, one year and one month old, the second premium of $5.

To C. P. Holcomb, of Newcastle, Delaware, for his bull "Granby," one year old, the third premium of $3.

Bull Calves under ten months old.

To Charles H. Muirhead, of Philadelphia, for his bull, four months and two weeks old, the first premium of $5.

To C. P. Holcomb, of Newcastle, Delaware, for his bull, six months old, the second premium of $3.

To the same, for his bull five months and two weeks old, the third premium of $2.

Cows of three years and upwards.

To C. P. Holcomb, of Newcastle, Delaware, for his cow "Betty," six years old, the first premium of $20.

To same, for his cow "Cherry," six years old, the second premium of $10.

To William H. Stewart, of ——, for his cow, five years old, the third premium of $6.

Heifers, between two and three years old.

For first premium—No merit.

For second premium—No merit.

To Morris Longstreth, of White Marsh, Montgomery County, for his heifer, two years and six months old, the third premium of $5.

Heifers, between one and two years old.

To John Lippincott, of Bucks County, for his heifer, one year and eight months old, the first premium of $10.

To Richard Pim, of Chester County, for his heifer, one year and five months old, the second premium of $5.

To Morris Longstreth, of White Marsh, Montgomery County, for his heifer, one year and six months old, the third premium of $2.

Heifer Calves under ten months old.

To C. P. Holcomb, of Newcastle, Delaware, for his heifer, five months and two weeks old, the first premium of $5.

To same, for his heifer eight months old, the second premium of $3.

To Thomas Hancock, of Burlington, N. J., for his heifer calf "Violet," eight months and two weeks old, the third premium of $1.

Nos. 4, 5, and 6.—Ayrshire, Holstein, and Alderney.

To the President of the Pennsylvania State Agricultural Society:

The Committee on Ayrshire, Holstein, and Alderney Cattle, make the following report:—

Ayrshire.

To A. R. McIlvain, for the best bull, between three and four years old, $20.

To A. L. Pennock, for the best bull between one and two years old, $10.

To Aaron Clement, of Philadelphia, for the best cow three years old, $20.

To C. W. Harrison, for the best heifer between two and three years old, $15.

Holstein.

To John Worth, for the best cow three years old, $20.

To same, for the best heifer between one and two years old, $10.

To same, for the best heifer calf ten months old, $5.

Alderney

To Jonathan Knight, of Bucks County, for the best bull, three years old, first premium of $20.

To Marshall Strode, of Chester County, for the second best bull, the second premium of $15.

To Thomas P. Remington, of Philadelphia, for the third best bull, the third premium of $8.

To William Supplee, of Philadelphia, for the best bull, between one and two years old, $10.

To Aaron Clement, for the second best bull, between one and two years old, $5.

To Craig Biddle, of Philadelphia, for the third best bull, between one and two years old, $4.

To Thomas P. Remington, for the best bull calf, ten months old, $5.

Alderney Cows.

To Peter Rose, of Philadelphia, for the best Alderney cow, between three and four years old, $20.

To Thomas P. Remington, for the second best, $15.

To William Supplee, for the third best, $6.

To Thomas P. Remington, for the best cow, between two and three years old, $15.

To Lewis R. Hillard, of Montgomery County, for the second best, between two and three years old, $5.

To William Supplee, for the best Alderney heifer, between one and two years old, $10.

To L. H. Twaddell, of West Philadelphia, for the second best, between one and two years old, $5.

The Committee consider the foregoing Cattle in fine condition, and highly creditable to the Exhibition.

William Kennedy,
John J. Rowland. } Committee.

No. 7.—Natives, or Grades.

To the President of the Pennsylvania State Agricultural Society:—

Your Committee (No. 7) on Natives or Grades, respectfully report that they award the following premiums:

To James Gowen, of Mount Airy, for the best bull, between one and two years old, $6.

To Isaac Newton, for the second best, $4.

To Reuben C. Lewis, for the best bull under ten months, $3.

A special premium is recommended to Aaron Clement, for his grade bull, eleven months old, $5.

To Robert Purvis, for best cow over three years old, $12.

To John J. Rowlin, for second best cow over three years old, $10.

To Jesse M. Williams, for third best cow over three years old, $6.

To Christopher Fallon, for best heifer between two and three years old, $10.

To C. W. Harrison, for the second best heifer between two and three years old, $8.

To Isaac Newton, for the third best heifer between two and three years old, $4.

To Richard Cartwright, for the best heifer between one and two years old, $6.

To Christopher Fallon, for the second best heifer between one and two years old, $4.

To Abraham L. Pennock, for the third best heifer between one and two years old, $2.

To Isaac Newton, for best heifer calf under ten months old, $3.

To Richard Cartwright, for second best heifer calf, under ten months old, $1.

We also recommend special premiums to be given as follows:

To Peter Rose, for a native heifer, $5.

To Christopher Fallon, for two grade cows, $10.

To A. C. Jones, for a native cow, $5.

To James Maas, for five grade cows, $20.

To Richard Cartwright, for a native cow, $10.

To Bernard Devlin, for two heifers, $5.

To John Turner, for one grade cow, $6.

To W. P. Passmore, for one grade cow, $6.

To same, for one pair of twin calves, $4.

To Francis Little, for two grade cows, $10.

To Thomas D. Taylor, for two native cows, $10.
To George Martin, for two grade cows, $10.
To P. Lambert, for one grade cow, $6.
To Nathan Ellmaker, for two grade cows, $10.

No. 9.—Working Oxen.

To the President of the Pennsylvania State Apricultural Society:

The Committee on Working Oxen respectfully present the following report as their awards:

For the premium offered by the Society for the twenty yoke of working oxen contended for by the Society of Chester, they award the premium of $50, to be given to the Agricultural Society of that county, and also recommend a silver medal to be offered to the same Society.

For the best three yoke they assign the premium of $20, to the three yoke owned by Paschall Worth, Thomas S. Woodward and Lewis Hoopes, of the county of Chester.

For the second best three yoke they award the second premium of $15, to George Blight, C. H. Muirhead and Thomas Dunlap.

The Committee desire to express their admiration of a pair of Devon Oxen, owned by Mr. George Blight, that in every respect showed the best breaking and the greatest docility.

For the best single yoke they award the first premium of $12, to Richard Pim, of Chester County.

A second premium of $10 to Joseph Powell, of the county of Delaware.

No. 9.—Fat Cattle.

To Joseph Palmer, of Kingsessing, for his fine four year old short-horn steer, first premium of $15.

No. 10.—Milch Cows.

Peter Rose, of the 24th Ward, of the city of Philadelphia, is entitled to a premium of $20, for the best grade cow, "Milk Maid," seven years old; said cow having yielded or produced 228 quarts of milk in ten days, viz: from the 12th to the 22d of September, 1854 inclusive—that the weight thereof, was 547 lbs, and that it took 18 quarts of milk to make one pound of butter; said cow calved on the 22d of August last.

No. 11.—Foreign Imported Cattle.

The best short horn bull imported within twelve months, the premium of $25, and Diploma to Charles Kelly, for his bull "Liberator."

To Christopher Fallon, is awarded the premium of $20, and Diploma, for his very fine cow "Rose." Mr. Fallon exhibited another fine short horn cow, of recent importation, called "Nelly." also, a fine young roan bull, under age, of much promise.

No. 24.—Grain Seeds, and Vegetables.

To Hon. F. Watts, *President of the Pennsylvania State Agricultural Society:*

The Committee (No. 24) on Grain, Seeds, and Vegetables, report as follows:

To Richard Pim, best bushel white Wheat, $3.
To Joseph Hemings, second best bushel white Wheat, $1.
To G. and C. K. Engle, best bushel red Wheat, $3.
To Jesse M. Williams, second best bushel red Wheat, $1.
To Charles L. Wampole, best bushel of Rye, $3.
To George Blight, second best bushel of Rye, $1.
To David Landreth, for the best bushel of white Flint Corn, $3.
To G. and C. K. Engle, for best bushel of Oats, $3.
To David Landreth, second best bushel of Oats, $1.
To James Sloan, best bushel of Potatoes, $3.
To A. L. Felton, second best bushel of Potatoes, $1.
To Ira Gibson, for a very fine sample of "Foxite Potatoes, $3.
To Joseph Harrison, for best bushel of Sweet Potatoes, Pennsylvania growth, $3.
To William Blair, best bushel field Turnips, $3.
To A. L. Felton, second best bushel field Turnips, $1.
To A. L. Felton, best bushel of Carrots, $3.
To William Blair, best bushel of Parsnips, $3.
To David Landreth, best bushel of Flaxseed, $3.
To Job Hayes, best bushel Timothy Seed, $3.

The Committee also notice a very fine collection of garden and field seeds, grown by David Landreth, Esq., at Bloomsdale, numbering over two hundred different kinds. Also, some white flour corn and "Adams'" early six week's corn.

Paschall Morris & Co. also exhibited a large and highly crieditable collection of field and garden products, including over one hundred varieties of seed.

Among the contributions, we notice fine samples of corn from G. Blight, E. Hindle, E. T. Hoopes, Thomas Yeamans, W. Blair, J. Kinnear, Rev. K. Goddard, E. J. Dicking, and others.

Samples of wheat from M. Garret, M. Clegg, T. Yeamans, J. Lidster, J. Cope, P. and G. P. Whitaker, G. Vanartsdalen, and others.

The competition in potatoes, was large. Among the contributors we notice G. Blight, T. Yeamans, J. Simpers, F. Scattergood, J. Kinnear, J. C. Kane, T. R. Bunting, H. W. Ditman, and others, all of whom exhibited fine samples.

Messrs. Craig and Bellas, A. Garrett, G. S. Fox, E. T. Hoopes, M. H. Cornell and C. M. Wampole, exhibited some good samples of oats.

No. 30.—Flowers, Plants and Designs.

To Hon. F. Watts, *President of the Pennsylvania State Agricultural Society:*

Your Committee (No. 30.) on Flowers, Plants and Designs, have awarded the following premiums, viz:

For Private Collection of Green House Plants—20 Varieties.

First premium of $20 to James Kent, gardener to J. Francis Knorr.
Second premium of $15 to Thomas Robertson, gardener to B. A. Fahnestock.
Third premium of $10 to gardener of William W. Keen.
Fourth premium of $8 to gardener of John Lambert.
Fifth premium of $6 to Alexander Burnett, gardener to H. Pratt McKean.

Collections of Green House Plants—20 Varieties, open to all.

First premium of $20 to John Pollock, gardener to James Dundas.
Second premium of $15 to Robert Buist.
Third premium of $10 to Isaac Collins.

Collections of Green House Plants—12 Varieties, open to all.

First premium of $10 to Isaac Collins, gardener to Gen. Robert Patterson.
Second premium of $8 to John Pollock, gardener to James Dundas.
Third premium of $6 to James Kent, gardener to J. Francis Knorr.
Fourth premium of $5 to David Ferguson.

Collections of Specimen Plants—4 Varieties.

First premium of $8 to Peter Raabe.
Second premium of $6 to James Kent, gardener to J. Francis Knorr.
Third premium of $5 to John Pollock, gardener to James Dundas.

Collections of Conifers—6 Varieties.

First premium of $5 to Paschall Morris.
Second premium of $3 to John Gray.

Collection of Achimenes.

First premium of $4 to Thomas Robertson, gardener to B. A. Fahnestock.

Collection of Orchids.

First premium of $5 to Robert Buist.

Collection of Ferns.

First premium of $2 to John Pollock, gardener to James Dundas.

Designs of Cut Flowers.

Premium of $20 to Peter Raabe.
Premium of $10 to Harry Lynch, gardener to J. Rutter, West Chester.

Designs of Cut Flowers, not exceeding five feet in height.

Premium of $4 to Henry A. Dreer.
Premium of $3 to Robert Kilvington.

Designs formed of Grasses.

First premium of $3 to Mary McIlvaine, West Philadelphia.
Second premium of $3 to William Berry, gardener to Alfred Cope.

Designs formed of Indigenous Plants.

First premium of $8 to John McIntosh.

Baskets formed of Cut Flowers.

First premium of $3 to Mrs. M. Newkirk.
Second premium of $2 to John Kinnier, gardener to Thomas Dunlap.
Third premium of $1 to Robert Kilvington.

Bouquets for the hand.

First premium of $3 to Charles Souchet.
Second premium of $2 to Henry Lynch, gardener to J. Rutter, West Chester.

Dahlias—24 Varieties.

First premium of silver medal, to Robert Buist.

Roses—20 Varieties.

First premium of $5, to Robert Buist; second premium of $3 to Henry A. Dreer.

Roses—Greatest Variety.

First premium of $3 to Paschall Morris; second premium of $2 to Robert Buist.

Verbenas—Greatest Variety.

First premium of $3 to Robert Buist.

German Asters—Best Collection.

First premium of $3 to Charles Souchet.

The Committee with great pleasure, notice a handsomely prepared collection of "Marine Algae," or "Sea Weeds," by J. M. A. Sommerville, of Philadelphia, and a beautiful collection of variegated plants, by Robert Buist—together, with a handsome collection of plants from the garden of Dr. James Rush, not entered for competition. They also notice an immense leaf of the "Victoria Regia," and a fine specimen of "Nelumbium Speciosum," from the collection of Caleb Cope; and a splendid specimen of "*Lycopodium Coesium*," from Mr. Joshua Robinson, Pittsburg, Pa. Mr.

Peter McKenzie, of Philadelphia, has contributed 250 varieties of Green House Plants, but not for competition.

No. 30½—Garden Vegetables.

To Hon. F. Watts, *President of the Pennsylvania State Agricultural Society:*

Your Committee (No. 30½) on Garden Vegetables, respectfully report, that they have awarded the following premiums, viz:

To James Jones, gardener at Girard College, for best twelve stocks of Celery, $3.
To same person, for second best, another variety, $2.
To A. L. Felton, for twelve best white table Turnips, $3.
To J. and C. K. Engle, for second best white table Turnips, $2.
To James Jones, gardener at Girard College, for best dozen long red Beets, $3.
To William Barry, gardener to A. Cope, best dozen Parsnips, $3.
To George Blight, of Germantown, for second best dozen Parsnips, $2.
To William Barry, gardener to A. Cope, best dozen yellow Onions, $3.
To William Barry, gardener to A. Cope, second best dozen yellow Onions, $2.
To John Riley, gardener at Insane Hospital, best three dozen yellow Onions, $3.
To James Jones, gardener at Girard College, best three dozen white Onions, $2.
A. L. Felton, best six heads Broccoli, $3.
To William Barry, A. Cope's gardener, best dozen Tomatoes, $3.
To William Barry, A. Cope's gardener, best peck Tomatoes, $3.
To James Jones, gardener at Girard College, second best peck Tomatoes, $2.
To George Blight, best Egg Plants, (second plants,) $3.
To Henry Smith, Frankford, second best Egg Plants, (second plants,) $3.
To James Jones, Girard College, best six Egg Plants, $2.
To Robert Buist, second best six Egg Plants, $1.
To Jesse Rambo, Gloucester County, N. J., best dozen Sweet Potatoes, $3.
To Amos Darlington, West Chester, second best dozen Sweet Potatoes, $2.
To William Barry—A. Cope's gardener, best half peck Lima Beans, $3.
To John Gray, best three garden Squashes, $3.
To L. P. Hoopes, West Chester, best dozen ears yellow Seed Corn, $3.
To John Kinnier—T. Dunlap's gardener, second best yellow Seed Corn, $2.
To John Gray, best dozen ears white Seed Corn, $3.
To Matilda B. Thomas, best dozen table Potatoes, $3.
To John Kinnier, second best dozen table Potatoes, $2.
To George Blight, best dozen Carrots, $2.

To William Barry, second best dozen Carrots, $2.
To John Riley, best one dozen Salsify, $2.
To William Barry—A. Cope's gardener, best six dozen heads Cabbage, $3.
To John Riley, second best drum heads Cabbage, $2.
To James Jones—Girard College gardener, best red Dutch Cabbage, $3.
To James Jones, Girard College gardener, best of another kind, Savoy, $2.
To A. L. Felton, best six heads Lettuce, $3.
To William Barry, second best six heads Lettuce, $2.
To George Blight, best three dozen Sweet Corn, $3.
To A. S. Felton, second best three dozen Sweet Corn, $2.
To George Blight, best three specimens Marrow Squashes, $3.
To John Riley, best two specimens Pumpkins, $3.
To H. W. Ditman, Oxford, second best two specimens Pumpkins, $2.

Display of Vegetables.

Best, by market gardener, A. L. Felton, premium of $15.
Best, by amateur gardener, John Riley, $10.
Second best, amateur gardener, James Jones, Girard College gardener, $5.
Third best, amateur gardener, George Blight, $4.

PHILADELPHIA SOCIETY FOR PROMOTING AGRICULTURE.

Stated Meeting, August, 1854.—President, Dr. A. L. Elwyn, in the chair.

Minutes of preceding meeting read and approved. Dr. William Shippen and Mr. J. C. Cresson, proposed as resident members at last meeting, were balloted for and duly elected. Two propositions for resident membership were received.

Mr. David George tendered his resignation from the Joint Committee of Arrangement on the State Agricultural Fair. On motion, the resignation was accepted, and Mr. John Rice appointed in his stead.

Mr. Harrison, from the same Committee, reported that the grounds at Powelton had been enclosed for the purposes of the Fair, and that a proposition had been made to the Pennsylvania Horticultural Society, to adopt their premium list, and the awards of their judges, provided the Society would waive their usual exhibition and throw their influence in behalf of the Horticultural department of the State Fair. All which has since been agreed to.

The President inquired concerning the result of the late exhibition of implements at Mr. Stavely's, in Bucks county.

Mr. Landreth had understood that, owing to the great diversity of opinion which prevailed, awards had been made to several of the competitors.

On motion of Mr. Landreth, that the Secretary be and he is hereby authorized to send a copy of the published minutes of the Society, recently prepared in pamphlet form, to every kindred Society in the Union. Which was so ordered.

Dr. Kennedy hoped that the discussion on Reaping and Mowing Machines, postponed from last meeting, would be resumed. Hitherto our Society had devoted too little attention to agricultural machinery, a department in which our countrymen would probably attain to the highest excellence. In the improvement of stock, in irrigation, in drainage, in the cultivation of soils and the application of concentrated manures, we competed with Europe unequally. There labor was cheaper, and wealth more concentrated. The high price of labor, while it prevented expensive experiments in agriculture, stimulated to the invention and perfection of labor-saving machinery. Reaping and mowing machines were cases in point. American agriculture had recived no greater boon for many years, and agricultural societies could do no greater service to the cause, than by increasing the list of their premiums for improved implements and newly-invented machinery. In England, where such inventions were less needed, their production was vastly more stimulated by prizes. M'Cormick's Reaper was the great feature of the Agricultural Department of the World's Fair at London. Yet the speaker had there seen a drain-laying machine which dug the trench, laid the tiles and covered them up by power applied to a windlass at a remote part of the field! Tile-making machines came properly within the province of the agriculturist. Tiles were now made in Europe in a continuous tube, the clay being forced through proper orifices in steel plates, by the pressure of a piston (as in the manufacture of maccaroni), or by friction of rollers. The tubes as they are formed are cut into appropriate lengths. Dr. K. had failed to find such tiles in Albany, where he had been on the preceding Saturday. He farther explained their action, and also that of the tile-laying machine, above cited.

Mr. Sheridan contended that drain-laying machines might do in a light, well-worked soil, in Europe, but not in the refractory, stony soils of America. He could not imagine a subsoil plough which could cut a drain without leaving a wide, open trench.

Mr. Samuel Williams had seen such ploughs. They burrowed, as it were, the lower part, not improperly called a shoe, connected with the frame of the plough, by means of a thin, strong piece of iron, which, like a coulter, presented its edge to the sod. The peculiarity of the machine described by Dr. Kennedy, did not consist so much in that it made a trench, as that it laid the tiles evenly immediately following the plough, and closed in the soil over them.

Mr. Landreth was pleased to hear the amount of agricultural machinery at the World's Fair, and coincided in the opinion that the subject of agricultural machines had not received sufficient attention and encouragement. He resumed the debate on the reaper and mower, and was followed by Messrs. Harrison, Willits, Newton, George R. Engle, Gustavus Engle, Sheridan and others. The discussion, although highly animated and entertaining, is, for reasons formerly given, not reported.

MASSACHUSETTS HORTICULTURAL SOCIETY.

The tent on the Common, devoted to the annual display of the Massachusetts Horticultural Society, has been visited by a large number of our citizens and strangers. The display was magnificent. The following is the list of prizes and gratuities awarded by the Society:—

PRIZES.

Apples—For the best 30 varieties, of 12 specimens each, the Lyman plate, valued at $30, to Messrs. Burr, Hingham; for the second best, $20 B. V. French, Braintree; for the third best, $10, Joseph Lovett, Beverly; for the best 12 varieties of 12 specimens each, the Society's plate, valued $20, B. V. French, Braintree; for the second best, $15, J. B. Moore, Concord; for the third best, $12, Messrs. Burr, Hingham; for the fourth best, $8, John Gordon, Brighton; for the best dish of apples, 12 specimens of one variety, $6, James Guild, Roxbury; for the second best, $5, Francis Marsh, Dedham; for the third best, $4, John Gilbert, Hillsboro' N. H.; for the fourth best, $3, B. V. French, Braintree.

Pears—For the best 30 varieties of 12 specimens each, the Lyman plate, valued at $30, to M. P. Wilder, Dorchester; for the second best, $10, Hovey & Co., Cambridge; for the third best, $10, Joseph Stickney, Watertown; for the best 12 varieties of 12 specimens each, the Lyman plate, valued at $20, Josiah Stickney, Watertown; for the second best, $15, Josiah Richardson, Cambridge; for the third best, $12, W. R. Austin, Dorchester; for the fourth best, $8, J. A. Stetson, Quincy; for the best dish of pears, 12 specimens of one variety, $6, Nahum Stetson, Bridge-

water; second best, $5, Josiah Richardson, Cambridge; third best, $4, John Gordon, Brighton; fourth best, $3, J. H. Stetson, Quincy.

Assorted Fruits—For the best basket of fruit of various kinds, $8, to M. P. Wilder, Dorchester; for the second best, $4, Azell Bowditch, Roxbury.

Grapes—For the best five varieties, two bunches each, $12, W. C. Strong, Newton; second best, $8, Mrs. F. B. Durfee, Fall River; third best, $5, Charles E. Grant, Roxbury; for the best two varieties, two bunches each, $6, Thomas Page, Waltham; second best, $4, C. S. Holbrook, East Randolph; third best, $2, J. Pritchard, West Roxbury.

Peaches—For the best dish of not less than twelve, $5, William Bacon, Roxbury; second best, $3, D. E. Jewett, Westboro'.

Vase Bouquets—For the best pair suitable for the Bradlee vases, a prize of the Bradlee plate, valued at $10, to Evers & Bock, Brighton; second best, $5, James Nugent, Jamaica Plain; for the best pair for the Society's Marble Vases, $10, Winship & Co., Brighton.

Parlor Bouquets—For the best pair suitable to the parlor, $8, to M. P. Wilder, Dorchester; second best, $6, Evers & Bock, Brighton; third best, $5, James Nugent, Jamaica Plain; fourth best, $3, Winship & Co., Brighton.

Pot Plants—For the best display of not less than 20 pots, a prize of $12, to J. P. Cushing, Watertown; second best, $10, Thomas Page, Waltham; third best, $8, Azell Bowditch, Roxbury; fourth best, $5, M. P. Wilder, Dorchester.

Cockscombs—For the best six pots, a prize of $3, to J. Kelley, Watertown.

Vegetables—For the best display and greatest variety at the Annual Exhibition, $10, to B. V. French, Braintree; second best, $8, Henry Bradlee, Medford; third best, $6, Stone & Co.; fourth best, $4, John B. Moore. Mammoth Squash—For the largest and best, the Society's Silver Medal, to Amos W. Stetson, East Braintree; for the second best, $3, Messrs. Derby, Salem. Pumpkins—For the largest and best, the Society's Silver Medal, to T. McCarty, Roxbury; for the second best, $3, George Nelson, Lexington.

GRATUITIES.

Peaches and Nectarines—George W. Willis, Chelsea, $3; Josiah Richardson, Cambridgeport, $3; Nahum Stetson, Bridgewater, $3; H. Y. Gilson, East Cambridge, $2; E. C. Stevens, Dorchester, $3.

Baskets of Assorted Fruit—E. M. Richards, Dedham, $2; W. A. Crafts, Roxbury, $2; Nahum Stetson, Bridgewater, $3; Misses Cordwell, Roxbury, two dollars.

Grapes—Wm. Blake, Jamaica Plain, $2; Joseph Breck & Son, Brighton, $5; W. C. Strong, Newton, $3.

Apples—A. D. Williams, Roxbury, $10; Bowen Harrington, Lexington, $6; Samuel G. Hyde, Newton, $8; Josiah Stickney, Watertown, $6; W. R. Austin, Northern Spy, $3; John Parker, Acton, Blue Pearmain, $3; Josiah Richardson, Cambridge, Ribston Pippin, $3; Levi Brigham, Saxonville, Nonpareil, $3; E. M. Richards, Dedham, Gravenstein, $3; James Eustice, South Reading, Gravenstein, $3; Theodore Clapp, Dorchester Gravenstein, $3; John Gordon, Brighton, Grand Sachem, $3; Josiah Stickney, Watertown, 20 oz. Pippin, $3; A. W. Withington, Dorchester, St. Lawrence, $3; Benjamin Bliss, Porter, $3; Peter Lawson, Lowell, collection, $5; Thomas Page, Waltham, do, $3; A. W. Stetson, East Braintree, do, $7; C. S. Holbrook, East Randolph, do, $3; Cheever Newhall, Dorchester, do, $3; John A. Kenrick, Newton, do, $3; James Eustice, South Reading, do, $7; Evers & Bock, Brighton, do, 6; E. Winslow, Roxbury, do. $3; Eben Wight, Dedham, do, $6; Josiah Newhall, do, 3$.

Pears—George Southard, Roxbury, Louise Bonne $3; Samuel Downer, Dorchester, fine specimens, $10; Samuel Walker, collection, $10; J. S. Cabot, Salem, do, $10; J. S. Sleeper, Roxbury, do, $5; Josiah Lovett, Beverly, do, $5; Winship & Co., Brighton do, $5; William Bacon, Roxbury, fine specimens, $5; Henry Vandine, Cambridge, collection, $5; Robert Manning, Salem, do, $10.

Vegetables—For fine display—John Gordon, Brighton, $2; Josiah Crosby, West Cambridge, 3; Nahum Stetson, Bridgewater, $4. Davis Seedling Potatoes, display—H. L. Shattuck, Concord, $2; A. Bowditch, Roxbury, $5; Josiah Stickney, Watertown, $4; S. B. Pierce, Dorchester, $2; C. S. Holbrook, East Randolph, $2. Sea Kale, display—James L. Little, Swampscott, $1; Timothy McCarty, Roxbury, $3; James Nugent, Jamaica Plain, $3. Squash—Winship & Co., Brighton, $10. Corn, display—Messrs. Burr, Hingham, $2; Bowen Harrington, Lexington, $4; A. D. Williams, Roxbury, $4; Galen Merriam, Newton, $4; A. D. Webber, Needham, $4. Lima Beans—Samuel Jordon, East Stoughton, $1. Potatoes, display—James Hyde & Son, Newton, $8; A. R. Pope, Somerville, $2. Celery—Bowen Harrington, Lexington, $2. Potatoes (Davis)—J. B. Moore, Concord, $2. Squash, collection—E. M. Richards, Dedham, $1;

George R. Sampson, Roxbury, $2. Tomatoes,—Peter Lawson, Lowell, $1. Potatoes (new)—B. V. French, Braintree, $2. Summer Squash—Henry Bradlee, Medford, $3.

Melons—B. V. French, Braintree, 11; Nahum Stetson, Bridgewater, $3; Josiah Stickney, Watertown, $1; Galen Merriam, Newton, $1; A. D. Webber, West Needham, $2; H. Bradlee, Medford, two dollars.

For Pot Plants—Winship & Co.; Brighton, $8; Evers & Brock, Brighton, $5; George W. Collamore, Boston, $2; Mrs. Gorley, $1; Moses B. Williams, Brookline, $8; M. P. Wilder, Dorchester, $5; J. Mason, Cambridgeport, $1.

Floral Design—Mrs. William Kenrick, Newton, $5; Miss F. A. Russell, Newton, 2; W. C. Strong, Newton, $7; do do, $1; Miss Fannie Wright, Dedham, $5; Curtis & Lincoln, Boston, $6; Miss Mary M. Kenrick, Newton, $3; Azell Bowditch, Roxbury, $3.

For Bouquets—William E. Carter, Cambridge, $2; C. S. Holbrook, East Randolph, $2; Messrs. Burr, Hingham, $2; Jonathan Morris, Newtonville $5; Master A. G. Read, Boston, for basket artificial flowers, two dollars.

We have occupied perhaps too great space in this number, to the awards of premiums at our late State Fair; but there are many of our subscribers to whom these reports will be very interesting, especially, as this was the greatest Fair ever held in this State.

Notwithstanding all our appeals to our subscribers, they still withhold the subscriptions due last January; it may be the result of carelessness on their part, but if so, it is very inconvenient to us; fully one third of the number are still our debtors.

CATALOGUES have been received from the Toledo Nursery Association, and Messrs. A. Frost & Co., Rochester, New York.

OUR NEXT PLATE will be a figure of a new variety of Rhododendron, the *Comtesse Ferdinand Visart.*

THE FLORIST
AND HORTICULTURAL JOURNAL.

RHODODENDRON CINNAMOMEO-CAMPANULATUM,

Comtesse Ferdinand Visart. (Van Houtte.)

We give in this number a figure of a variety of Rhododendron Cinnamomeum, obtained by Mr. Van Houtte, of Ghent. The foliage is handsome, cinnamon color beneath, and the flowers, creamy white, bordered with rose, produced in large clusters. It is adapted, in this climate, to a cool greenhouse.

CULTURE OF THE PEACH TREE.

For the last few years the culture of the Peach has declined. The "yellows," "blight," peach-worm and curculio have been singularly destructive, and fruit which a few years ago could be scarcely given away, now finds ready sales at high prices. Old orchards are dying out, and comparatively few new ones formed to replace them; confidence in their successful culture is yearly growing weaker, till in almost every region we travel we are told "Peaches will not grow with us any more."

I am not going to deny that there are no difficulties attendant on modern peach-growing near cities, or even that if there are difficulties, that they are not greater than attended the efforts of our forefathers; but merely to point out how they can still be grown successfully, either to return a handsome profit in a commercial point of view, or to yield a crop of the very finest kind of fruit for the raiser's own table.

The *aspect* of the site of a peach-orchard is one of the first importance. Contrary to the general idea in favor of a southern exposure, a northwestern or western is preferable. Peach trees on a southern aspect seldom bear well over five years, or live over ten. On any other, all other things being equal, there seems to be, as there probably is, no limit to their age. Rarely do we meet with a peach tree on a southern slope stricken with the "yellows," while aged, healthy trees are invariably found in such places in perfection. I have some trees at the present moment in my mind's eye,

so old that I can find no one to tell me their age exactly, which are growing on the north side of some high buildings, models of health and productiveness.

Theory confirms this view of the proper site for Peach trees, as well as observation; not being a native of this country, it is like most exotics, not perfectly adapted to our climate. The sap vessels of the wood are large, and there is a large amount of moisture stored up in them, in the winter season. Science has shown that when these vessels are frozen through, they become particles of ice, any sudden thaw is apt to burst the cell tissues, if the expansion by the act of freezing alone does not do so; so that trees in situations where they are not liable to be suddenly thawed in winter, are more liable to escape injury. In the respect of *soil*, the Peach is not so fastidious as it is often supposed to be. Any loose kind of loam will suit it. I have seen as fine and productive Peach trees in "Pennsylvania clay," as in "Jersey sand." In a red clay loam, on a subsoil of rotten shaly rock, I have noted splendid specimens. In each, it is more easy to point out what soils are ill adapted for Peach culture, than what is the best; and the whole subject may be summed up in the observation, that the Peach will do well in any soils except heavy clays, or soils very retentive of moisture.

Having dismissed the questions of aspect and soil, we may talk a little on the preparation of *the ground*. If it be of a nature to get very dry in summer time, it should be trenched eighteen inches in depth, if the piece to be planted is small; and subsoil ploughed, if their culture is to be carried on to a large extent. Sandy soils will not require this operation, because they retain moisture a long time, a few inches below the surface, though on the ground such soils soon become hot and dry; all strong manures are superfluous, if not injurious; wood ashes, and in some cases, lime in small quantity, I have found beneficial.

The *selection of kinds* to plant is difficult, if we will have only the *best;* if we seek merely good standard varieties, it is a very simple affair. In the Philadelphia markets the Early York, Crawford Early, Crawford Late, Morris White, and Morris Red, with occasionally, the Heath and George 4th, probably comprise three fourths of all the named kinds offered there. If I were to select twelve varieties for myself, I should take for the two best early Crawford's Early, and Druid Hill: next, early George 4th, Haines Early, and Morris Red; next succeeded by Morris White and Cooledge's Favorite; Crawford's Late and Ward's Late coming in after these: and the amirable, Late Heath, and the Oldmixon Free winding up the list, and the

season. This list comprises well known and general favorites. There are many other new kinds, and some old, but ill-known ones, probably as good as those enumerated. The Tyson is a fine large, well-flavored variety, ripening about mid-season. In my observation, it seems but a shy bearer, but I have only seen young trees. The Eliza is a very early, large, yellow Peach, of which I think very highly, though some of my friends deem it but second rate in flavor. Tippecanoe, and La Grange have high reputations, but of these, I cannot speak from my own experience. The Shanghae Peach, lately introduced from China, will, I think, prove one of our best late peaches. The fruit is very large, flesh melting, and of a yellowish white, the habit of the tree is peculiar; the buds are white, and the leaves and shoots very vigorous and strong. But as tastes differ as widely as, in many cases the varieties of the Peach itself, we will pass to another bone of contention—the *best time to plant*. So far as my experience goes, peaches will do nearly as well planted early in spring, as early in the fall,—say before the 15th of November. I prefer to plant them as soon as the first autumn frosts have scorched the leaves. The only disadvantage I have noted as attendant on autumn planting Peaches is, that the soil becomes packed tight around the roots by spring, and the fibres do not seem to push so freely there, as they do in soil newly turned up, and well filled with air and nutritious gases. On the other hand, an early fall planted tree, generally gets a good root hold before fall, and while it suffers less from severe winters, will at the same time, often bear some fruit in the following season, which a spring planted tree rarely does. The advantages and disadvantages of spring and fall planting, are respectively so evenly balanced, that probably opinions will never be united in one channel on the point. Each will do well to consult his own observations and convenience.

My *after management* of the Peach is a very simple affair. It consists in chief, of "letting them alone." If they do not seem as vigorous as I like them, I prune back, or shorten in a little, some of the young shoots; but the maxim is sound, that if you want *wood*, prune and "trim out," if *fruit*, cut as little as you can. I like the ground around and about peach trees to be kept constantly tilled, cultivated and kept clean. I never could convince myself by reason, analogy, or observation, that Peach trees did well with a mass of sod around them, and the constant cultivation of the soil is also advantageous towards inducing fruitfulness, by cutting off occasionally, some of the smaller roots thereby checking that extreme luxuriousness, which is a frequent cause of barreness in this class of fruits. MELOCOTON.

ON THE PLEROMA KUNTHIANUM AND LASIANDRA SPLENDENS.

It sometimes happens that accident points out the best method to manage certain plants, to get them to the greatest perfection. To a certain extent we have been indebted to this cause, or rather, perhaps, for the right means, for a magnificent display of blossom of the *Pleroma Kunthianum* of Paxton, also called *P. Benthamianum*, and *Lasiandra Kunthiana*, certainly one of the best of all the fine tribe of the Melastomaceæ. The treatment this has received here was the following: This time twelve months gone, was purchased among other plants, a nice young plant of our present object. At that time there was but one house for accommodating all sorts, which was kept during winter as a warm green-house. The plant, when purchased, was healthy and luxuriant, but all winter wore a sickly, unhealthy appearance, as though ill at ease. This being so, it was kept out of sight as much as possible, and watered but seldom. The first week in March, a hot-bed was prepared to accommodate our few pining stove plants, and amongst them was our present notice, which was cut well back and given a liberal shift, and which then ultimately began to show signs of new life. It remained here till the first week in May, when having a vinery just finished and planted, it was transferred to this place, getting too large for a frame; here it showed evident signs of luxuriating in a high, moist and humid atmosphere.

By the 4th of July our stove was ready into which our pet was introduced; from that time to the present, it showed its gratefulness for all favors, and now is repaying by a bountiful supply of panicles, of very large, deep, blue-purple flowers, of five wedge-shaped petals, each having a white blotch at the base.

From the foregoing we infer it requires perfect repose, in a low temperature during winter, exciting it into growth early in the spring, and affording all the encouragement possible during summer and it should receive no stopping from the time it first commences growing.

Of course this presupposes a good plant, to begin with. A plant should be grown one year before treated thus, in the following manner: Strike cuttings early in the spring, which root readily with the assistance of heat, as soon as rooted, pot off into single pots, as the pots become filled with roots, shift into larger, occasionally stopping the leading shoots, till the end of July, after which, cease potting and stopping, and give the plants every opportunity to ripen their wood; gradually dry off the plants in the fall,

and treat as recommended above. For soil, use turfy loam and peat, equal parts, with sand enough added to make porous; a little pulverized charcoal will benefit them. Use liberal drainage.

The plant is a native of the Organ Mountains of Brazil, 3,000 feet above the level of the sea, from whence it was sent to the Glasgow Botanic Garden, in 1846–7.

Lasiandra splendens.

This is another fine Melastomaceous plant, better in habit than the preceding, finer in foliage, inferior in blossom, size, color, and duration. We have a fine plant now bursting its flower buds, and is immensely full; the same plant having flowered bountifully last April, being twice in eight months. It has been treated throughout as a warm green-house plant, and out of doors from the first of June till the plants were housed. It is now placed in the stove to open the flowers, after which it will be, most likely, again wintered in the green-house.

This affords another proof of the power the cultivator has over many plants to alter the time of flowering. The opinion seems fast gaining ground that many of what are termed stove or hot-house plants are benefited by a perfect repose during winter. In this country it can only be successfully done by wintering many of them in a green-house, owing doubtless to the exciting temperature of ordinary stoves; from the powerful effects of mid-day sun even in winter, tends to keep such plants as the preceding always in a state of activity.

The whole family of *Allamanda*, after they become specimen plants, do far better if wintered in the green-house for two or three months, than if left in the stove the whole time, forming better plants and flowering freer.

Edgar Sanders.

November 6th, 1854.

THE PELARGONIUM.

Of the many productions of the florist, none attract so much attention as a well-grown Pelargonium. Good plants may be obtained by different treatment from what I adopt; but no directions can be given which will insure equal success with practice and experience. Gardeners all know that neglect is always followed by its consequences, shabby specimens and inferior flowers; and that whenever a plant loses its health, whatever may be suggested or put in force may accomplish, it seldom atones for the abuse first received.

What growers consider beauty in a Pelargonium are, the perfect development of all its parts, and that they should be symmetrically disposed. Compact, healthy plants cannot be obtained, if water is not carefully applied, or if crowded, or not freely aired upon all favorable occasions. If kept close and warm, and watered freely in winter, they grow weak, and if kept cool and watered, they become yellow and spotted.

To make good specimens, take your cuttings before cutting back your old plants, which is generally done in July, and put them into small pots, one in each, filled with sandy loam. Plunge into a gentle bottom heat in a frame, taking off the sash on mild nights. In three or four weeks they will be well rooted; then they should be shifted into larger, and grown until the roots fill the pots. Keep them moderately dry and stop the shoots, having a care to the symmetry of the specimen. After stopping, give plenty of air and grow them strong and bushy. Through the winter months, give sufficient water to keep them from flagging; in the middle of February, shift into blooming pots, 8 or 10 inch pots being sufficiently large. The best soil to use is two-thirds turfy loam that has been kept a season, and one-third rotten manure and sand, rubbed together with the hands; press the soil well in potting. To grow plants for exhibition tie all the shoots to stakes to keep them in their place, those for the green-house only need to be regulated. In cutting down old plants, it is best to allow them to become dry to heal the wounds. At starting again, keep them close and give water, and when they have started, shake them out and trim the roots pretty close, repot and put in gentle bottom heat until they emit new roots, then give them the same treatment as recommended above.

WM. GREY,
Gardener to J. T. Norton, Esq., Farmington, Ct.

NEW PLANTS FIGURED OR DESCRIBED IN EUROPEAN PERIODICALS.

BEGONIA var. LAPEYROUSEI.—M. de La Peyrouse had the kindness to send me last year a Begonia which he had obtained from seed, which excels in beauty all the species and varieties yet known. It is derived from *B. hydrocotylefolia*, fertilized by *B. incarnata*. Its appearance is majestic, its stalks robust, its leaves very large, very thick, of a fine shining green more like those of *B. hydrocotylefolia* than those of *B. incarnata*. This last

species has a limber foliage and elongated stalks, appearing drawn up, defects which the beauty and long duration of its flowers do not repay. The *B. Lapeyrousei* has, as I said, firm, strong stalks, admirable leaves, peduncles and pedicels short, and large compact bouquets of flowers of a beautiful satiny rose which ornaments the plant from the base to the top. This plant, which I cannot praise too highly, does not grow above two feet high. *L. Van Houtte in the Flore des Serres.*

CEREUS MACDONALDIÆ, HOOK.—This is a new species similar in color and form to the C. grandiflorus, but with much larger flowers, the bud alone before opening measuring 14 inches, and the flower is greater than that in diameter. The stalks are like those of *C. grandiflorus*, but the angles are scarcely perceptible.* It will be a great addition to our collections, as it grows rapidly and flowers easily. It is night-blooming. The species was sent to Kew from Honduras, of which country it is a native, by the wife of Gen. Mac Donald.

GESNERIA DONCKELAARIANA.—Judging from the figure and description of this in the Flore des Serres, it should be the handsomest plant of the family to which it belongs. The leaves are large, heart-shaped, and of a deep green. The flowers are borne on a deep purple stalk, simple below and panicled above with numerous flowers. These are gloxinia-shaped, of a bright crimson, the inside of the tube yellow. M. Donckelaar the younger, claims it as a hybrid between *Gesneria discolor* and *Ligeria rubra* (Gloxinia speciosa). M. Decaisne doubts this and suggests that it is a distinct species introduced by accident among other individuals of the family. He pronounces it the richest in flowering and color of the genus.

FUCHSIA SOUVENIR DE LA REINE.—If the plant be nearly as striking as the figure of this variety, it is the handsomest variety extant. The tube of the calyx is crimson extending in a fringe a little into the sepals; the rest of which are white, tipped with green. The corolla is deep crimson. It is a seedling of M. Coene of Gendbruggo, Belgium.

CLIANTHUS PUNICEUS var. MAGNIFICUS.—This is a leguminous plant, said to have been introduced from Navigator's Island, which Dr. Planchon doubts, because the original species was discovered in New Zealand; and this plant requires only the green-house. The leaves are small and deep green; the flowers are brilliant vermillion and fully 3½ inches across, are borne on short peduncles.

PHILESIA BUXIFOLIA.—This species, with the *Lapageria rosea*, form the sub-order Philesiæ, a division of Smilaceæ. It is a shrub, with numerous

* In the figure the stalk resembles that of *C. extensus*. SALM.

branches, and dense, evergreen, coriaceous leaves. The flowers which are tri-petalous, bright red, about 2 inches long, are borne at the ends of the branchlets. It was brought from the neighborhood of the Straits of Magellan and is hardy at Exeter, in England. Messrs. Veitch, for whom it was collected, have flowered plants from four to eighteen inches high.

CALYPTRARIA HÆMANTHA.—A melastomaceous plant, with leaves green above, brown beneath sprinkled with red hairs. The flowers are borne in panicles, are reddish purple and very large. It was obtained by M. Schlim, collector for Mr. Linden of Brussels, on the Andes of New Grenada, growing at an altitude of 5000 to 7000 feet.

BERBERIS DARWINII.—This hardy shrub was discovered within a few years in the island of Chiloe by Mr. Darwin the learned naturalist. Mr. Wm. Lobb, the celebrated collector for Messrs. Veitch of Exeter, England, sent the seeds to them. They exhibited a plant in April, 1851, not three feet high, covered with flowers. The leaves are of a brilliant, shining green, and the orange colored flowers in axillary racemes, make a beautiful contrast.

HYDRANGEA JAPONICA, *fol. albo variegatis.*—This is a variety obtained in Italy by the Messrs. Rovelli, near Milan. The leaves are beautifully variegated at the edges with white, with a light green blotching the darker ground color. We have seen a young plant of this, in the house of Jas. Dundas, Esquire, of this city, which although it had not entirely recovered from the effects of a sea-voyage, yet showed the variegation very distinctly.

ERIOCNEMA ÆNEA.—In a former notice of this plant, we said that it had "umbels of inconspicuous flowers." In this we were wrong, having judged from the spike of buds just shooting up when we saw it. Since then we have seen it in bloom. It bears a one-sided cyme of rosy pink flowers very much resembling in size and color those of our native Rhexias, which are the only representatives of the same order, Melastomaceæ, we have in this part of the United States.

SOME PRINCIPLES OF VEGETABLE PHYSIOLOGY, BEARING ON THE CULTURE OF PLANTS.

BY PROFESSOR W. H. DE VRIESE, OF THE UNIVERSITY OF LEYDEN.

(Translated from the Dutch.)

THE sleep of plants is that state of which we said a few words in the beginning, and in which we see the parts of flowers or leaves, which are at

other times expanded, contract or fall together, because they lose their natural elasticity and turgescence, which is occasioned by the action of the sun's rays. The sleep of plants is in no respect to be compared with that of animals.

The barometer indicates the changes of weather, even before they are preceptible to our senses. We say that it forebodes them. In that respect also do certain plants. Not only do many flowers close up when it rains, but there are many plants which forebode rain, in the same sense as the barometer forebodes the changes of weather. Calendula pluvialis closes its flowers, and Porliera hygrometrica its leaves, when rain is about to fall. Warmth and dry air are necessary, which cause them to expand and evaporate strongly, to retain their natural size. The dampness of a cloudy or misty atmosphere, which precedes rain, causes the parts to fall together; this and the sleep of plants are, therefore, called hygrometric phenomena.

When the evaporation is disturbed, the plant becomes sick, nothwithstanding the supply of nutritious particles by the root; this has appeared from observation and experiment. If the leaves are smeared with varnish, or any other glutinous matter which hinders the evaporation, then the plant dies, for the surface can no longer be active.

In July, 1845, there appeared, to an alarming degree, in one of the plants most generally used for food (the Potato) a disease probably not unknown formerly. Fields, which till lately had grown luxuriantly, showed only death and decomposition; the hope of the farmer on a large crop disappeared. Many people forboded bad harvests for following years, and advised a change in the plan of agriculture. An extraordinary hot summer weather preceded, followed by a sudden falling of the thermometer, having showers, and cold days. The plant, which had grown too luxuriantly, was at once disturbed in its growth and in its evaporation. The liquids were forced to remain in the plant; they had no means of escape, the tubercle was not ripe—the fæcula not yet formed, but, floating in an over-abundant water, stood still of necessity, and soon rotted; the leaves and stem withered and became rotten. That is, it appears to me, the simple, primary cause, and the course of a sickness, which was a national calamity here and elsewhere, and the sad consequences of which we see more or less every year. The leaves are to be compared to the lungs and skins of animals; they remove from the body substances which could not, without damage to the organism, remain in the mass. But while they draw the saps upwards, they are nourished by them, and borrow from the fluids raised the substances necessary for their own development. At first white, thin, membranous,

and tender in their construction, afterwards they become gradually thicker, more fibrous, sometimes hard as leather, dark green, and shining. Such is their state in the middle of summer; afterwards we see them lose their green color, become yellow, and hang loosely down. Others become red; they acquire the particular colors that we call autumnal, and which impart to the woods and pleasure-grounds, such a peculiar charm as to make us loth to exchange the woods and fields for the turmoil of the town. The Oak becomes brown, the black Beech whitens, the Ash loses its green color, the Maple becomes yellow and black, the wild Vine of a purple color, and the Cornel tree red and yellow; the whole presents a peculiar variegated mixture of the finest diversity of tints; but all this beauty is only the precursor—yea, it is even the beginning of an approaching dissolution and instant death. The leaves die—their whole relation to the atmosphere is changed, or even seems to cease. The upper layer, by the quantity of fluid which soaks through it, and of which some substances fasten on it, or affect the surface, changes, thickens—but in all is at last unfit for evaporation, and shut out from the air. Those regular successions in change of substances which we have noticed as the cause of growth, as such take place no more; another series of changes, in which the growth has no part, nor is even the consequence, takes place instead; external influences become, as it were, master of the body, which is without the circle of life. The leaf, which is unable to discharge any more substances outwardly, can take up no more, becomes a useless appendage; it soon falls from the organ of which the life is not disturbed. The fall of the leaf, then, is not the consequence of the change of the seasons, for in tropical countries, also, this phenomenon takes place; it is the consequence of a changed state of life itself, of the disturbed connection between evaporation and absorption. In the month of August it was necessary, for local reasons, to strip two Linden trees of all their branches. They made new leaves, and they stand now (24th of November) still green and fresh, although covered with snow, and lately there have been some severe night frosts. The cause of the fall of the leaves is not to be sought for originally in the atmosphere, but in the construction of those organs themselves. The increased action of life is the cause of death, on account of the change it brings upon the tissues, without which the leaves would not fall off, and the plants we call annual, (that is, those which within the circle of a year, develop themselves and bring forth seed) would not in so short a time die off, but like shrubs and trees, would have an indefinite term of life.

Where should we end, if we wished to continue to enumerate examples of all that is to be ascribed to evaporation and its connection with absorption?—therefore we limit ourselves, and we repeat only this, that plants also take moisture from the air; that not only do the roots absorb fluids from the ground, but that the leaves inhale other substances which circulate in the air in the form of gas; that evaporation and absorption by green parts depend on the moisture of the atmosphere, on that of the plant, and on that of the ground; that the nature of plants is by these circumstances, remarkably modified, and that on them depend the forms and properties which plants present to us in different latitudes, and in their various positions.

The knowledge of what we have now treated is not without practical utility. A good watering or draining of the ground is not of less importance for the cultivator than a good manuring. The water that a plant evaporates, must also be brought into its roots. Where would be the limit of our treatise if we wished to try to make known all the great phenomena which vegetation, by means of evaporation, brings about in all Nature? Always, where there are woods, the state of the atmosphere is damp, and the ground for the most part fertile. The great streams of the earth have their origin generally in wooded mountains, and empty themselves at a great distance from them into the seas. Population settles on their fertile borders—culture, being, and civilization keep pace. Where no vegetation is, there is the soil wellbarren, the state of the atmosphere always dry; it seldom rains there. Men and animals flee from those withered and unfruitful regions. Wide districts of South America, where it never rains, and where there is no vegetation, may be cited as examples.—*Gard. Chron.*

DURATION OF WOOD IMPREGNATED WITH SULPHATE OF COPPER.

Many experiments have been made of late years with a view to the increase, by chemical means, of the duration of wood used in buildings of various kinds, and in the arts; the process has generally been to saturate the wood with some salt, several of which have been found to answer the purpose in different degrees: that used with most success has been the sulphate of copper. We translate for the benefit of our readers the following from the Bulletin of the Horticultural Society of the Seine:

M. Decaisne, the president, presents to the Society several specimens of wood impregnated with sulphate of copper by Dr. Boucherie's process, which consists in causing a solution of sulphate of copper to penetrate to

the interior of freshly cut wood, which preserves them indefinitely from decay; but it must be observed that all woods do not permit penetration equally. The beech, elm, and fir, readily admit all kinds of salts into their tissue· The oak impregnates completely its sap-wood, while the heart of the tree absorbs absolutely nothing. This last fact is not wanting in importance, in view of the value of forest products, for we see at once that the part of this tree which was thrown aside, or cut away as unfit for any use, acquires immediately, and merely by the fact of its impregnation, at least as much value as the heart of the tree, and that it can be employed with at least as much advantage as this latter part.

Different salts have been tried in order to find which of them possessed in the highest degree the faculty of preserving wood, and the sulphate of copper has been acknowledged the only one which could be employed with entire success.

M. Decaisne presented to the company a large piece of beech plank, divided in half, and in its length into three parts, by means of two cuts of a saw, of which one was impregnated with sulphate of copper, another with corrosive sublimate or chloride of mercury, while the middle part representing the heart, had not undergone any impregnation. This plank buried in the earth during five years, leaving one of the extremities above, has consequently been exposed to all sorts of atmospheric variations. At the end of this time, the central part was found completely altered; that submitted to the action of the mercury, was partly destroyed, while that injected with sulphate of copper, was preserved as sound as if it were just cut.

The same trials and the same results appear on other pieces of different woods. A lath of elm impregnated with sulphate of copper which, for the last seven years, has served at the Museum, to form with others a trellis, appeared yet as solid as if it had just come from the wood-yard.

The process of the injection of wood with the salts of copper, is as simple as easy. For thin wood intended for rods, it consists in plunging the base of a branch furnished with leaves, into a tub containing the solution. The liquid ascends into the branches by the action of the leaves, and the wood is impregnated with the preservative salt. As for logs, the operation consists in cutting down the tree to be operated upon, to fix at its base, a plank which is fixed by means of a screw, placed in the centre, and which can be tightened at will, when placed in the centre of the tree; this plank has on the side to be applied to the bottom of the tree, a rather thick shield of leather, cloth, paste-board, or some other substance intended to establish

a space between it and the wood, sufficient for the preserving, to keep in contact with the freshly cut surface of the tree. The liquid is brought there from a tub or other reservoir, by the help of a slanting hole made on the upper side of the tree and in which is put a tube adapted at its other extremity, to a spigot in the upper reservoir which contains the solution. A pressure of five metres suffices, so that the instant the sap of the tree is driven away, it escapes and is replaced by the liquid saturated with sulphate of copper. As soon as the operation terminates, and it lasts some hours for the most difficult logs, the wood can be sold and put to any use.

M. Decaisne enumerated the immense advantages which this process would procure to horticulture. Boxes, frames, greenhouses, supports, &c. &c., submitted to the so deleterious action of all the exterior agents, which destroy them so rapidly, all can acquire, so to speak, an indefinite duration, and thus furnish a very great economy of time and money. M. Decaisne opposes the processes by simple immersion. He demonstrates that in these processes, the impregnation is too imperfect; he shows that wood dried, and consequently filled with air, opposes an insurmountable force to the penetration of any liquid. According to M. Decaisne, dried woods immersed in sulphate of copper, are no more safe at the heart than wood on which have been applied a coat of color, varnish, pitch, &c.

M. Andry asserts, that he has obtained excellent results by these last processes applied to the wood of his greenhouse, to the supports which he employs, and especially to the coverings and curtains, serving as shelter for his greenhouse, these shutters and curtains, exposed to every cause of destruction, having lasted eight years after being immersed in a solution of one kilogramme of the salt to eight litres of water. M. Decaisne showed that this proportion is too weak for young pines which have little heart, and in which resin itself forms a combination. He regards the quantity of two kilogrammes of the sulphate, to a hectolitre as being more fit. He thinks that M. Boucherie possesses in this subject, results of experiment which are wanting to him. M. Decaisne also remarked to M. Andry, that his experience and observations were not comparative; that in the case of coverings, of cloth or of curtains, the liquid could *wet* completely, the fibres of his cloth and cords, &c., but it is not the same for timber which we wish to entirely moisten; nothing is easier than to steep cloth into water and to soak it; nothing is more difficult than to deprive the dried trunk of a tree of the salts which it contains. The wood destined for naval construction, and which are left several years in the basins, are an example. M. Decaisne asserts, that in plunging into the same liquid a cube of dry wood,

and a cube of green wood, the first will be wet at the most, in twenty-four hours a line in depth, while the green and fresh wood would impregnate itself in all its depth, in the same space of time, and he persuaded the members of the association to repeat this experiment.

PLANTING TREES AND SHRUBS IN THE PLEASURE GARDEN.

By a Garden Architect.

The present season of the year being that in which the laying out and planting of pleasure gardens is usually carried on, and as it is an operation of considerable gardening importance, not merely for the present, but for future too, to do it as effectually as circumstances admit of, both in forming the ground and arranging the trees, shrubs, and flowers, I am induced, as a constant practitioner, to forward some hints in furtherance of so desirable an object.

The style of this sort of a pleasure garden very much depends on the extent, situation, and character of the ground, that I can only, in this place, offer more than general remarks.

The plants which stand nearest the dwelling must be of the dwarfer kinds, and of the most beautiful sorts. The trees, also should be selected so as to correspond with the style of building. The villa shows best when surrounded by light ornamental trees, such as the birch, the acacia, the sumach, the laburnum and cypress; and a clump of poplars and mountain ash interspersed in the front part, to exhibit their pendant heads of scarlet berries, may sometimes be introduced, so as to break the line with good effect. The cottage may have more rustic trees; while to the castle belong the oak, the ash, and the pine: the mansion admits of all at their proper distance, and in suitable situations.

One of the most important things in planting is to attend particularly to the shades of green, especially where the view from the house or lawn catches the trees. Flowers, which Pliny calls the joys of the trees, continue but for a short period, in comparison to the duration of foliage; therefore, the picture should be formed by judiciously contrasting the greens. Even the effect of perspective may be considerably increased by the proper arrangement of hues. Trees whose leaves are gray or bluish tint, when seen over or between shrubs of a yellow or bright green, seem to be thrown into the distance. Trees with small and tremulous leaves should wave over or before those of broad or fixed foliage. The light and elegant acacia has a

more beautiful effect when its branches float over the firm and dark holly or bay-tree. In some situations the bare trunk of trees may be shown; in some it should be concealed by evergreens and creepers. Vines, also, may be suffered to embrace it, and form natural festoons, where the extent of ground will allow of wilderness scenery. In all situations nature may be assisted, but should never be deformed by clipping; for ingenuity ought to be employed to disguise art, not to expose it.

The beauty of plants cannot be displayed when they are too much crowded; as they are then drawn up into unnatural shapes. Therefore, the oftener open spaces can be admitted, the more will the shrubs exhibit themselves to advantage, and the more cheerful will be the walk; for it becomes insipid and gloomy when confined for any distance. The winds also claim our attention. Care must be taken so to arrange the position of trees, that only those gales which are most congenial to the growth of particular plants should be allowed access to them.

The undulating appearance of a plantation will be considerably assisted by a gradual progression from the lowest shrub to the highest tree, and again from the highest to the lowest. But, as some shrubs will not flourish under certain trees, their respective situations demand consideration. These shrubs may indeed exist under such unfavorable circumstances, but their unhealthy appearance will never be pleasing. Where the shade of any tree is too powerful for laurel or privet to thrive, ivy may be planted with advantage, if it be desirable to cover the ground with evergreen.

In proportion as the shrubbery or plantation recedes from the dwelling, it should become more rural in its character, more especially if the house be in the cottage style. Here climbers, and such plants as require the support of others, are to be introduced. The most delightful groups in a pleasure-ground are generally those where nature, freeing herself from the shackles of art, depends only on her own assistance for support. Her beauty is chiefly to be seen there, where her various creations combine spontaneously, and without restraint.

The means by which these plants raise themselves up, so as to offer their flowers to the sun, are as various as they are curious, and they seldom blossom whilst trailing on the ground. The ivy and bignonia ascend by the help of little fibres, which fix themselves to the bark of trees or crevices in walls so tightly as to render their disengagement a difficult thing to be accomplished without injury to the trunk or building they are attached to. The honey-suckle, like the hop, twines itself spirally around the trunk or branches of trees, and often clasps them so closely as to make an impression

on the hardest timber. Others, as the vine and passion-flower, rear themselves by means of corkscrew tendrils, which hold so fast that the strongest winds seldom disunite them from their support. Some plants climb by means of a hook in their leaf-stalk, or have a kind of vegetable hand given them, by which they are assisted in mounting, as the pea and several others.

To return from this digression.—The sombre, gloomy walk of yew, cypress, or holly, should lead to the spot from which there is the most beautiful prospect, or to the gay parterre, where Flora has diffused her flowery beauties; as the contrast, particularly if sudden, adds greatly to the cheerfulness of the terminating view.

Bad taste is seldom more conspicuous than when we see trees or plants marshaled in regular order, and at equal distances, like beaux and belles, standing up for a quadrille or country dance. Where the situation will permit, four or six lilacs should be grouped in one place, and as many laburnums in another, so as to give effect in various parts by a mass of color.

The guelder rose should appear as if escaping from the dark bosom of evergreens, and not a plant should be set in the ground without adding to the harmony of the whole. A shrubbery should be planted as a court or stage is ornamented, for general effect, and not particular and partial inspection. Boldness of design, which seems to be more the offspring of nature and chance, than of art and study, should be attempted; but though boldness is what the planter should aspire to, all harshness, or too great abruptness, must be avoided, by a judicious mixture of plants whose colors will blend easily into one another.

The most beautiful shrubs should occupy the most conspicuous and prominent places. For instance, a projecting part of the plantation should be reserved for the purple rhododendron, the flaming azalea, and other bog plants. Here it must be observed, that unless proper soil be provided for these American plants, the cost of the shrubs will be lost, as they will soon decay when not placed in earth congenial to their nature. With these shrubs may be planted the hardy kinds of heath, as the same soil suits both species. With respect to evergreens, considerable judgment is required, in order to relieve their uniform appearance during winter. This may be done by skilfully arranging different kinds, and those with variegated leaves, or such as retain their brilliant berries during the cold months.

However, a well planted shrubbery depends not so much for its beauty on the expense or rarity of the plants it contains, as on the selection of trees and shrubs which succeed each other in blossoming throughout the year, or whose various-colored fruits grace them for the longest duration of time.

We shall, therefore, not dwell upon those plants alone that are the ornaments of the summer season, but also point out some that will contribute to the gaiety of morning and evening of the year; so that the gloom may be banished at all times as much as possible from the grove, and nature's repose shortened between the plaintive good-night of autumn and the cheerful good-morrow of spring.—*Flor. Cabinet.*

REMARKS ON THE HEALTHINESS OF THE ROOTS OF PLANTS BEING ESSENTIAL TO THEIR SUCCESSFUL GROWTH.

BY A PRACTICAL GARDENER.

As the roots of plants are *the chief medium* through which they receive nourishment, some account of their structure, and of the curious and simple mode by which they effect their object, will, I hope, prove of some utility to the readers hereof.

The root may be defined to be that portion of a plant which grows in an opposite direction to the stem; and differing from the latter in its remarkable downward tendency, and from its disposition to shun the light of day. So powerful, indeed, is this tendency to descend, "that no known force is sufficient to overcome it." The chief object of the root appears to be that of fixing the plant firmly in the earth, and of taking up a supply of moisture from the humid medium by which it is surrounded. It usually consists of several ramifications, from the sides and extremities of which, without any apparent order or regularity, proceed an indefinite number of delicate fibrils with spongy points. Now these fibrils are the only true roots, and to their soft extremities (spongelets) is consigned the whole office of absorbing fluid; the more woody portions of the root merely serving as canals, to convey the fluid thus obtained to the upper parts of the plant. The roots generally pierce the soil in a downward or horizontal direction, according to the individual habit, but more especially in that course which offers the least resistance, and yields the greatest quantity of soluble food. Hence the propriety of *mulching* is by some gardeners called into question, because the richness of the mulching material, and the warmth produced by its fermentation, has a tendency to attract the surface the young fibrils. And then, upon the removal of the manure employed in the operation, their extremely succulent and tender tips become exposed to the influence of drought, &c., than which nothing can be more injurious, as it quickly destroys their absorbing power, and thus deprives the plant of its

chief source of nourishment. It has been said that the fibrils are the only true roots, and that the feeding function is chiefly consigned to the lax tissue of their extreme points. That this is really the case, there can be no reasonable cause to doubt, or why should the success of planting depend so materially upon their preservation? it being a well-known fact, that subjects of any size, such as fruit trees, are invariably less prolific the first season after transplantation, than on the previous and ensuing years. Why these little spongelets should possess the power of absorbing moisture with great force, and of transmitting it to every part of the plant, is a curious question, and has given rise to many ingenious conjectures. But it has at length been satisfactorily answered by that clever French author, M. Dutrocet. If a small glass tube, having its end covered with a piece of bladder, be partially filled with gum-water, and then plunged into simple water, sufficient to wet the outside of the bladder, the latter will be permeated by the water, and the volume within the tube will continue to increase, so long as the density of the fluids on each side of the intervening membrane remains unequal. "But there is also a contrary current to less amount,—the interior fluid passing out to mix with the surrounding water." The first and more powerful of these currents is called endosmose (flow inwards), and the second and less powerful, exosmose (flow outwards). The cause of their motion was by Dutrocet referred to galvanism; but it is now more generally believed to arise from "the attraction exerted between the particles of the different fluids employed, as they meet in the porous membrane."—(Dr. Reid.)

"Now the conditions requisite for this action are two fluids of different densities, separated by a septem or partition of a porous character. This we find in the roots. The fluid in their interior is rendered denser than the water around by an admixture of the descending sap; and the spongiole (or spongelet) applies the place of a partition. Thus then, as long as this difference of density is maintained, the absorption of fluid may continue. But if the rise of the sap is due to the action of endosmose, there ought also to be an exosmose. This is found to take place; for if a plant is grown with its roots in water, the fluid surrounding them is soon found to contain some of the peculiar substances they form, and which are contained in the descending sap: thus a pea or bean would disengage a gummy matter; a poppy would communicate to the water an opiate impregnation, and a spurge would give it an acrid taste."

"Thus we see how beautifully and how simply this action, extraordinary as it seems, is accounted for, when its whole history is known, on principles which operate in other departments of nature."—(Dr. Carpenter.)

From this it must appear obvious to every one that, to keep plants in a healthy state, the conditions of endosmose and exosmose must be carefully maintained. Thus in the case of bulbs maturing and at rest, and of plants cut down in the autumn, such as Pelargoniums and Fuchsias, the actions of the leaves being destroyed, the fluid, rising by the force of endosmose, must gradually subside, and the plants languish into a state of semi-vitality, till such time as genial warmth shall expand the fluid within their latent buds, and cause them to open and put forth new leaves. This is the reason why the application of water to plants thus circumstanced should be carefully avoided, excepting, indeed, a few special subjects, whose succulency is not sufficient to keep them from being shrivelled up. *Flor. Cabinet.*

THE TIME WHEN PEARS SHOULD BE GATHERED.

BY M. DE JONGHE, OF BRUSSELS.

Formerly, when the varieties of Pears in cultivation were comparatively few, there was little difficulty in knowing the time when each sort ought to be gathered; but now, when the number of good varieties is so much increased, the proper time for gathering the respective sorts cannot be known without a certain experience acquired during a period of from three to five years, in order that a mean may be obtained. For the maturity of the fruit on the tree depends—

1. On the individual constitution of the tree, and its liability to change.
2. On the soil in which the tree is planted.
3. On the influence of the stock.
4. On the temperature of the season, whether more or less favorable, for accelerating the maturity of the fruit.

In order to know exactly the mean period of maturity on the tree of any particular variety of fruit, it is necessary to observe several trees of such variety, planted in different soils and situations. With regard to the varieties of Pears which ripen at the end of summer, or early in autumn, it is not difficult to fix the date when they should be gathered; for, in the same situation, this, in different years, does not vary more than ten days.

The influence of soil, of stocks, and of a temperature more or less warm and dry, is not so great on early fruits as on the late autumn, winter, and spring varieties. With regard to the summer and early autumn kinds, they cannot always be left to ripen completely on the tree, grown as a pyramid or standard; and it is needless to add that these sorts of fruits do not, in

our climate, merit a wall, where, in fact they are never so good as in the open ground. When a considerable number of fruits is observed to have reached the point of maturity, and when, with a slight pressure of the thumb, the stalk is readily detached, without twisting, at its junction with the spur, a portion of the fruit should then be gathered, and allowed to acquire their full maturity in the fruit-room. This first gathering will ease the tree, and the whole of the nutritive sap will be directed towards the remaining fruits, which, in consequence, becomes much finer; and these are gathered in the same manner, and successionally. The operation of successional gathering, called, in French gardening terms, *l'entrecuellement*, may be very advantageously followed up, because all the fruits on a tree never ripen simultaneously; and that they may acquire full perfection, it is important that they should be left on the tree to attain the necessary degree of maturity, known to the practised eye by certain signs, which it would be difficult to point out without entering into tedious details.

With regard to the late autumn, winter, and spring Pears, the same proceeding is adopted; it is only by successional gathering, *l'entrecuellement*, that we can hit upon the proper time, and know the happy medium between gathering too early or too late. The gathering of these fruits, in season as above mentioned, commences about the middle of September, and continues till the end of October, or till just before the fall of the leaves.

When some fruits, neither bruised nor pierced by insects, of a late variety of Pear begin to drop, although not affected by strong winds, nor by the continued drought which we sometimes experience in our climate towards the end of September; and when the leaves begin to turn yellow and fall from the tree, an attentive and experienced person will perceive that the period of gathering is close at hand. Whatever may be the influence of the phases of the moon with regard to the period of gathering, I have observed, for more than twenty years, that a great number of varieties gathered two or three days before the full moon in September, kept exceedingly well, without speeking, in the fruit-room, where they acquired the full degree of perfection which the sorts respectively possess; whereas, by leaving all the fruit on the tree, without having recourse to successional gathering, I have seen a great portion of it drop successively during the last quarter of the moon; and moreover the fruits, whether fallen or gathered late, did not keep well in the fruit-room, nor did they acquire their full flavor. I ought here to remark that these observations have been made with regard to trees grafted on Pear stocks, and cultivated in the open ground, in a light deep

soil, but very rich with vegetable humus down to the subsoil, in consequence of frequently turning down the surface.

As above stated, the period of the maturity of the fruit on the tree, and likewise in the fruit-room, depends in a great measure on the soil in which the tree is planted; and the most delicious qualities of certain varieties of Pears, are owing to the peculiar nature of the soil. The lighter, warmer, and drier the soil, the sooner the flow of sap ends, and the earlier the fruit indicates the necessity of partial gathering. But in case of a stiff cold soil it is the reverse. The first variety of soil will be favorable to one kind of Pear, whilst the second would be unfavorable, and *vice versa*. But these details belong to a monograph on the cultivation of the principal kinds of Pears; which, it is hoped, will be completed some of these days, and it will prove very useful to young and inexperienced cultivators. In proof of this, I may be permitted to give an example, and it is taken from amongst many others. The variety of Pear called Nouveau Poiteau, of Van Mons, is unquestionably one of great vigor, very hardy, and productive. Worked on the Pear stock, and trained *en pyramide*, it bears fruit as large and as handsome as the Duchesse d'Angouleme, Beurre Clairgeau, and Marie Louis. Cultivated on the Pear stock, or on the Quince, in a free light soil, with a more substantial and somewhat gravely subsoil, this variety bears fruit which is melting, surgary, vinous, and slightly aromatic; whereas, if the tree is cultivated in a stiff cold soil, the fruit possesses none of these qualities. It is to be observed that the mean period of the maturity of this fruit takes place between the 10th and 25th of November, but without any change of its color (an opaque green), to announce that such is the case.

The soil, as previously stated, exercises a great influence on the quality of the fruit, but more decidedly on the long-keeping sorts than on the autumn kinds. When a tree has been planted under favorable circumstances, and has acquired sufficient strength—when it is not overloaded with too heavy a crop, and consequently the fruits are enabled to attain their natural size, and likewise the proper degree of maturity, on the tree—it will then only ripen in the fruit-room at the normal period assigned to the variety, whether it may have been gathered in the end of September or in October. In September, before the full moon in this month, if the trees is in a light, deep, warm soil; and in October if the soil is strong, compact, and cold. All these circumstances require to be taken into consideration, in order to know when to gather the fruit, so that it may keep in the fruit-room its usual proper time for use.

It cannot be denied, and all practical men agree, that the stock has great influence, not only as regards the period of gathering the fruit, but also with respect to that of its ripening in the fruit-room. I knew a cultivator who raised stocks for budding with summer and autumn fruits, others for winter and spring varieties. With regard to the summer and autumn kinds, the nature of the stock is of little importance; but when long-keeping sorts are worked on wild Pear stocks, which stocks, if allowed to fruit, would produce summer Pears, it is certain that the period of ripening of late Pears worked on these stocks would be affected. I have seen some seedlings, planted in proper soil, produce fruit of which the medium time of ripening on their own roots had been fixed between September and February; but when grafted on summer or early ripening wild Pears, the ripening of the above varieties, grown in similar soil, was accelerated more than a month. Such irregularities do not result from propagations on the Quince stocks, because these are identically reproduced from layers. The importance of avoiding the unsuitable union of winter and summer fruits will be readily admitted: that is, the grafting of late ripening varieties of Pear trees on early ripening wild Pear stocks.

I am aware it will be objected that the purchaser would not take precautions on this point into consideration; that he only sees to the young trees having been once or twice properly cut or pruned; and that a certain number of such and such varieties required for his plantation is obtained. I understand these objections, because they do in reality exist. However, there are some intelligent amateurs who wish to obtain good articles on which they can depend, and are willing to pay a good price for them as a just remuneration to the producer.

Warm and early seasons accelerate the maturity of the fruit on the tree, but not in the fruit-room. After a good summer and warm autumn, Pears keep better, are always longer in becoming fit for use than when the season is otherwise, especially as regards the late sorts. After the warm summers of 1834, 1838, 1841, 1844, 1848, and 1850, the Passe Colmar and Beurre d'Hardenpont [Glout Morceau], although gathered in the end of September, kept till the end of December and January; the Beurre Rance, from January till April and June.

In conclusion, from what has been stated, it results that the same kind of fruit cannot be gathered uniformly at the same date, owing to various circumstances which influence the ripening; that by successional gatherings, or at intervals, the proper time for different localities is best ascertained; and that, in general, all the varieties ought to be gathered before their perfect maturity, which should be attained in the fruit-room.

Gard. Chron.

(From the Germantown Telegraph.)

STRAWBERRY CULTURE.

The Strawberry is, and deserves to be, the most extensively cultivated of all our small fruits. Productive, easily cultivated, and equal to any fruit in flavor and general usefulness, it would be strange were it not familiar to every garden. Neither has it lacked notice in horticultural literature. Much valuable information has of late years been disseminated relative to its history and management; and although there are various opinions held, with reference to its botanical distinctions, its treatment as a fruit-bearing plant is reduced to a matter of certainty. On the former question it is not my present purpose to enter, but beg to offer a few remarks in regard to its general treatment and culture.

When we consider the habit of growth, season of ripening, and permanency of the strawberry plant, we are led to the conclusion that the soil intended for its growth should receive the most thorough preparation. Its dwarf, spreading growth is not favorable for after improvement of the soil, farther than what can be derived from applications on the surface. Ripening at a period which, in nine seasons out of ten, is characterized by deficient moisture in the soil, and extreme atmospheric aridity, suggests the idea of allowing the roots a deep and rich medium, where they can luxuriate uninfluenced by surface temperature. And when we farther consider that a strawberry plantation should produce at least three crops before removal we may safely aver that the preparation of the soil in the first instance is of the utmost importance.

This leads us again to tne foundation of all permanent improvement, *subsoil culture*. Trench the soil at least 18 inches in depth, incorporating a heavy dressing of well-decomposed manure, and if the soil is clayey, or adhesive in its nature, an application of charcoal dust will be highly beneficial. As a corrective for clayey soils, charcoal cannot be too highly recommended. In a physical view, it renders the soil porous and permeable to gases, and chemically, its absorbing and disinfecting properties are equally valuable, the amount of ammonia and other gases which it is capable of absorbing, giving it value as a fertilizer. On a soil thus treated, there will be no dan-

ger of a defective, half-ripened crop, or the plants burning out, as frequently happens on poor, shallow soil, for although the strawberry is a plant of small structure, I have traced the roots, in favorable soils, a distance of three feet from the surface.

There are various methods of arranging the plants. They may be placed in rows thirty inches apart, the plants standing one foot from each other in the row, or, planted in beds six feet wide, thus admitting of four rows, the plants fifteen inches apart. Some strong growing varieties require more space than the above to attain their greatest perfection, and such as the Boston Pine, Goliah, &c., do best in hills thirty inches or three feet apart. The best method for garden culture is the first-mentioned, keeping between the rows clear of weeds and runners, unless the latter are required for a new plantation, which, on the principal of rotative cropping, should be done every third or fourth year, as the plants seem to retain their vigor and fruitfulness.

Young plantations may be set out at various seasons; either at midsummer, fall or early spring. As early as young plants can be obtained, say about the last of July or beginning of August, is the time for midsummer planting. Choosing a cloudy day for the operation, the plants immediately on removal should have their roots preserved for dipping them in a puddle. This system of encasing roots with a coat of mud, is very useful and efficient, and may be practised in the transplanting of all young plants in dry weather, as it obviates, in a great degree, subsequent attention in watering. A thin covering of short grass, or litter of any description, should now be laid about the young plants. Planted thus early, a good growth will follow, the plants mature bud before winter, and produce an average crop the following season.

Fall planting is frequently practised, and if the plants are set out early, not later than the middle of September, they will root and get somewhat established before winter; but the alternate freezing and thawing of the soil during winter, throws them out of the ground, unless the soil is of a sandy nature and protected with a covering of litter. Instead of planting them out permanently in the fall, it is more advisable to place them a few inches apart in a sheltered spot, where they can be preserved by a covering of leaves all winter, and planted out early in spring. This practice not only affords time for a suitable and thorough preparation of the ground, but the plants being carefully lifted with small balls of earth to their roots, will produce a more uniform and vigorous plantation, than those permanently planted out in the fall.

Mulching is a very material consideration in strawberry culture, more particularly in spring and fall. Covering the ground between the plants with hay, leaves, &c., in spring, preserves the fruit while ripening, and retards the escape of moisture from the soil. In the fall a covering of short manure will serve the double purpose of enriching the soil and sheltering the plants during winter. Tan bark has been much recommended for this purpose, and has been pronounced a special manure for the strawberry. I have used it largely for many years, but have not discovered its utility as a manure; its protecting qualities cannot be questioned, and may be usefully employed as a substitute—but not equal to a mixture of partly decomposed leaves and stable-yard manure—for winter covering.

The long list of named varieties, and the constant additions to the list, renders it difficult to make a choice selection; some catalogues enumerate over 100 named sorts. Having tested at least half that number, I prefer and would recommend the three following as combining all that has been attained in this fruit:

1. For flavor alone, Burr's Pine. 2. For size and flavor, Hovey's Seedling, and for size, M'Avoy's Superior. These, with a few plants of the Cushing, or Buist's Prize, as fertilizers, will leave little to be desired in the excellence of this valuable fruit.

Some time ago the horticultural world was thrown into a small state of excitement by the announcement that in New-Orleans they had a strawberry which produced a succession of crops during the summer. Plants of this variety soon found their way to the North, but, without exception, they have proved an entire failure. No doubt this peculiarity depended altogether upon the climate and treatment. I have frequently by peculiar treatment, gathered two crops in one season from the same plants. Our strawberry season might be much prolonged were means taken to irrigate the plants when necessary. This might easily be effected on sloping grounds, by forming a series of slight terraces, the plants grown in narrow beds somewhat elevated, leaving slight trenches between the rows of plants. These level platforms could then be saturated with water at pleasure, and communication being secured, the surplus water would descend from one to the other. The rain water falling on a dwelling house or barn, collected in a tank, would be found sufficient for an ordinary plantation, and there is no doubt, would amply repay all trouble both in the quantity and quality of the produce.

WILLIAM SAUNDERS.
Landscape Gardener, Germantown.

HARDINESS OF AKEBIA QUINATA·

When, a year ago, M. Decaisne gave the figure and description of *Akebia quinata*, he could scarcely have expected that this plant was about to become an addition to our hardy climbing plants ; but at present, since the winter of 1853–4 has proved its hardiness, and the abundance of its flowers has shown its merit as an ornamental plant, we do not hesitate to recommend it to amateurs. In fact, if it be one of the most brilliant plants, it is no less one of the most curious, as much from the shape of the leaves, as from the color, the number and the disposition of its flowers.

Two specimens planted in the open ground in the garden of the Museum, one against a wall and one exposed, have not suffered in their herbaceous parts. That placed against a wall towards the south-west, attained a size of nearly six feet, nnd has but one stalk ; it bore fifty-two bunches of flowers, united by two and threes, at the base of each bud of the preceding year ; the flowers commence to bloom on the 28th of March and now on the 12th of April, there are yet a great number of buds. The plant exposed in the open air is nearly as high, it has three principal stalks, which altogether have not less than seventy clusters of flowers. These last commence to open on the 9th of April. But if the sheltered situation has been favorable to the former with regard to its forwardness, it has not been the same to those flowers entirely exposed to the sun. These flowers have been less colored and have passed very quickly from the violet color to a deeper shade.

We should add that the *Akebia quinata* joins to the above merit that of vigorous growth, and that its numerous shoots can attain in a single year, from 5 to 10 feet, or even greater length.

The exposure which we suppose to be the most favorable for this plant, is a partly shaded one, or along a wall exposed to the East. The soil we found most suitable for it is a very sandy peat, or mixed with sand. Its multiplication is rather difficult, it is best done by means of cutttings of the half ripened wood, cut from a plant kept in the greenhouse.

CARRIERE, *in Revne horticole.*

As we are drawing to the close of the year, we would urge upon our delinquent subscribers the necessity of paying their subscriptions. We have appealed to them again and again, and in too many cases, vainly. We have been giving them our time and our means, and have received no return. There are a few, even, who owe us for the preceding volume. With the present high prices of paper, and our paper is the best used by any

periodical in the country, and the high cost of our plates, to be repaid, we must have the prompt co-operation of our subscribers. We hope that before we issue our January number, to have few or no delinquents to complain of. We have made such arrangements for the coming year, that no delay can be experienced in getting out each number promptly ; we have plates for some months in advance, and paper enough for nearly a year.

NATIONAL CATTLE SHOW.

We are indebted to a friend in Boston for a copy of the New England Farmer, containing an account of the opening of the National Cattle Show at Springfield. A large number of persons were present from all parts of the country. The show of cattle was very large, and the entries generally of very fine quality. The premiums offered were very large, one being as high as 500 dollars.

There were several noteworthy things at the November exhibition of the Pennsylvania Horticultural Society.

The Cissus discolor from Mr. Cope's, shown in flower for the first time was a well grown and well trained specimen, the largest we have seen of this most beautiful of variegated plants. The white flowers add much to the appearance of the plant, contrasting well with the dark color of the foliage.

A specimen of Luculia gratissima, shown by Mr. Thompson, gardener to John Tucker, Esq., was a rare object ; it bore five clusters of its beautiful, rose-colored, fragrant flowers. Although by no means a new plant, our gardeners do not seem to be successful with this. We have seen it tried several times, and on one occasion a few years ago we saw it bloomed, but every specimen which has come under our notice has been lost. We once suggested that they were probably killed with kindness, being nursed to death in warm stoves.

Mr. James Jones, gardener at Girard College, exhibited some remarkable Celery, as large and white as we have ever seen. It attracted much attention.

Mr. Felten's vegetables, were what they usually are, large in size and excellent in quality.

The Coleus Blumei in Mr. Fahnstock's collection was a good specimen of his gardener, Mr. Robertson's skill. It was well grown and neatly staked.

The number of visitors to the monthly meetings has been small, since the destruction of the Museum building, probably on account of the location of the room chosen. The Assembly Buildings is a more central location.

NOISETTE ROSE "BEAUTY OF GREENMOUNT."

This Rose is a seedling of Messrs. Pentland and Brother, Greenmount gardeners, Baltimore, Md. It received the first premium for the best seedling exhibited last year. It is free blooming, bearing large clusters, the flowers are shaped like Hermosa, very double, and of a rich cherry color. Another not yet named, is a pure white, a constant bloomer, with extra large clusters and very fragrant. They have both been pronounced to be among the finest of their class and quite distinct. J.

NEW YORK STATE FAIR.

The Fourteenth Annual Show of the New York State Agricultural Society, was held on the 3d, 4th, 5th, and 6th days of October, in Hamilton Square, in the upper part of the City of New York. The arrangements were in the same style as those of the Pennsylvania Fair. The Show of cattle, we hear, was superior to ours, as might have been expected from the liberal importations of fine stock, by Messrs. Becar, Stevens, Morris and others. There were 205 horses entered, principally blood horses and trotters: among which, were Trustee, Monarch and Fashion. The Mules were very numerous and superior. The Sheep, Swine, Poultry, &c., were well represented. Vegetables and Fruit are said to have been shown in abundance, and good quality. The Plants from Messrs. Thomas Hogg & Sons, Ellwanger & Barry, and others, are highly spoken of. The number of persons visiting the Fair was small, and consequently, the receipts were not great. The American Agriculturist, from which we take the above, puts the receipts at $10,000, less than one half the sum realized in our City.

THE MARYLAND HORTICULTURAL SOCIETY

Held their Annual Exhibition on the 4th, 5th and 6th of October. The Show was a very fine one, considering the extreme drought which prevailed during the summer. The Vegetables were remarkably fine, and in great abundance, more so than at any previous Exhibition of the Society. Of Fruits, there was also a fine collection, and a beautiful display of Plants and Flowers. The greastest drawback, was the want of a proper place to display all that was offered: the large Hall of the Maryland Institute, being occupied by the Annual Exhibition of that Society.

S. Feast & Sons, contributed a large collection of Plants and Flowers. They also had 27 varieties of Pears, with Grapes, &c.

Dr. Edmondson, by his gardener, contributed Plants and Flowers, many of them quite new.

Pentland & Brother, had a fine collection, among which, were some large specimens of new hardy Evergreens: also a fine collection of Roses, including two seedling Noisettes of their own raising.

John Feast had a large collection of Plants.

John Tuomey contributed Plants and Flowers.

Jacob Standenmeyer, gardener to G. Brown, contributed a fine collection of Grapes.

James Cowan, gardener to J. Ridgely, of Hampton, had some very large bunches of Black Hamburgh and Royal Classelas Grapes. S. H. Simpson, H. Mankin's gardener, Plants and Flowers. O. Kemp, a fine collection of Achimenes.

Vegetables from Whittemore & Bro., D. R. Lusby and others. The room was handsomely decorated with various designs, contributed by S. Feast & Sons, Pentland & Bro., J. F. Fuss and E. Foulk. Mrs. Town also had a beautiful Vase, formed of Grasses tastefully arranged which was much admired.

The following premiums were awarded:

Best 24 specimens of Plants, S. Feast & Sons.
2d best " " C. Campbell, gardener to Dr. Edmonson.
3d best " " John Feast.
Best 12 new and rare Plants, C. Campbell.
2d best " " John Feast.
Best 24 Roses, Cut-blooms, Pentland & Bro.
2d best " " C. Campbell.
Best seedling Rose, to Pentland & Bro., for their fine White Noisette.
Dahalias, best 20 blooms, James Cowan.
2d best " " to E. Foulk.
Best 12 " to S. Feast & Sons.
Balsams, best to Capt. Pracht.
" 2d best to C. Campbell: discretionary premium to Mr. Walker.
Best Tuberoses, to C. Campbell.
2d best " to James Cowan.
Bouquet, best for hand, to S. Feast & Bro.
2d best " " J. Standenmeyer.
3d best " " S. Simpson.

Design for table Ornament, to Pentland & Bro.
2d best " " to E. Foulk.
Best Basket, E. Foulk.
2d best " S. Feast & Sons.
3d best " Mrs. A. Pentland, discretionary to Mrs. Baker.
Bouquets for Vase, best pair, Mr. Fuss.
" " 2d best pair, E. Foulk, discretionary to Mrs. Town, for Bouquets of Grasses.
Best Design for room, S. Feast & Sons.
2d best " " Pentland & Bro.
3d best " " Mr. Fuss.

A number of premiums were awarded for Native and Foreign Grapes, Apples, Peaches, Pears and Melons; and for Vegetables, for which we have not room.

PENNSYLVANIA HORTICULTURAL SOCIETY.

September 19, 1854, the Stated Meeting of the Society, was held in Sansom Street Hall, this evening.

Dr. William D. Brinckle, Vice President in the chair.

On motion, ordered that the chairman of the special committee appointed to conduct the Horticultural department of the State Fair, be authorized to purchase the table coverings, at the close of the Fair.

On motion, resolved, that no member of either of the standing committees for awarding premiums shall be considered qualified to act, from whose collections objects for competition are presented, at either the annual or monthly exhibitions of the society.

Resolved, that the Secretary is hereby directed to append to the name of every private gardener that of his employer also, in all cases where the former shall appear on the records of the proceedings of the society.

John Churchman was elected a member of the society.

Objects shown.—By William Johns—several dishes of Grapes. By John P. Aertsen—a basket of Figs.

October 17.—The stated meeting of the society was held, in the Sansom Street Hall, this evening.

Dr. William D. Brincklé, V. P., in the chair.

The following were the premiums awarded:

Pears.—For the best collection of ten varieties, to Isaac B. Baxter.

Apples.—For the best collection of ten varieties, to E. A. Vickroy, of Johnstown, Penn.; and a special premium of one dollar to Jerome Graff, Gardener to Caleb Cope, for a dish of Reine Claude de Bavay Plums, raised under glass.

The special committee appointed to assist in conducting the Horticultural department at the State Agricultural Fair held at Powellton, submitted a report, in which they assign reasons for the "sad condition" of the articles returned to those persons who so kindly and generously contributed of their choicest productions, and express their disappointment and dissatisfaction of an omission on the part of the Managers of the Agricultural Society to provide the facilities indispensable to a more successful display of horticultural objects.

Members elected.—To honorary and corresponding membership—Dr. Pierre Bretonneau, and Dr. Frederick Le Clerc, of Tours, and Alexander Brevort, of Belgium.

OBJECTS SHOWN.

Plants.—By Thomas Robertson, gardener to B. A. Fahnestock—Coleus Blumei, Ixora Blanda, Clerodendron Paniculatum, Veronica Andersonii, Pentas Carnea, Angelonia Gardeneriana, Torenia Asiatica, Passiflora Amabilis, Achimenes Coccinea, Gloxinia Albo-sanguinea, Fuchsia Mazeppa and Cuphea platycentra. By William Thompson, gardener to John Tucker, a fine blooming specimen of Dipladenia Crassinoides.

Cut-Dahlias.—By Gerhard Schmitz, a number of his fine Seedlings, and by Robert Buist a display of choice kinds.

Bouquets.—By James Kent, gardener to J. F. Knorr, a cone and four, suitable for the hand.

Fruit.—By Isaac B. Baxter—Pears—Doyenne, Napoleon, Vicar of Winkfield, St. Germain, Easter Beurre, B. Rance, B. D'Aremberg, Charmontel, Seckel, Broom Park, Duchesse D'Angouleme and Passe Colman. Also, Grapes, grown in the open air—White Portugal, Catawba and Isabella. By E. A. Vickroy, of Johnstown, Penn.—Apples—Ewalt, Sweet Mishlen and Pride of Richland Seedlings, and Hubers' Pippin, Holland Pippin, Yellow Pippin, Pound, Bellflower, Rambo, Gillyflower, Russet; and by Jerome Graff, gardener to Caleb Cope, a dish of Reine Claude de Bavay Plums, raised under glass. By Alexander Parker—Pears.

November 21.—The monthly meeting of this Association was held in the Saloon of the Assembly Buildings, on Tuesday evening, the President in the chair. The display of Plants was comprised mainly of Chrysanthemums.

Mr. Buist's collection was very fine, several of the Plants measured ten feet in circumferen e, and were in the profusest bloom. Mr. Fahnestock's gardener had a table of choice plants, the finest of which was the *Coleus Blumei.* Mr. Cope's gardener brought a magnificent specimen of the *Cissus discolor*, for the first time shown *in flower*—it was trained in an oblong oval form, measuring six feet in height and twelve feet in circumference; the beauty of the plant consists in the richness of color of the leaves, the flowers being insignificant. The *Luculia gratissima*, shown by John Tucker's gardener, was by far the best specimen of that plant seen before the Society. Mr. Parker exhibited many Chrysanthemums. A fine basket of Cut-flowers came from Mr. Cope's house, and four hand Bouquets from Mr. Knorr's.

Of Fruits, Isaac B. Baxter presented a fine display of Pears, consisting of ten varieties. E. A. Vickroy, of Johnstown, exhibited ten kinds of Apples, and Mr. Kessler, of Reading, the Reading, and Belle Angeviene Pear.

The fine display of Vegetables were contributed by A. L. Felten; and excellent Celery, by James Jones, from the Girard College grounds; and six handsome Cucumbers, by Mark Hill, gardener to M. W. Baldwin.

The following were the premiums awarded:

Chrysanthemums.—Large varieties; for the best, to Robert Buist; for the best of dwarf varieties to the same. And a special premium of $3 to Alexander Parker, for a display of Chrysanthemums.

American Seedling Chrysanthemum.—For the best, to Robert Buist, and for the best specimen of the large variety; and for the best of the dwarf, to Robert Buist. For a collection of plants a special premium of $3 to Thomas Robertson, gardener to B. A. Fahnestock.

Specimen plant.—For the best, a fine plant of *Luculia gratissima* in bloom, to William Thompson, gardener to John Tucker; for the second best, the *Coleus Blumei*, to Thomas Robertson, gardener to B. A. Fahnestock.

Plant shown fort the first time.—A premium of $5, to Jerome Graff, gardener to C. Cope, for a very fine specimen of *Cissus discolor*, shown *in bloom* in all its splendor for the first time.

Basket of Cut-Flowers.—For the best, to J. Graff, gardener to C. Cope.

Apples.—For the best ten varieties, to E. A. Vickroy, of Johnstown.

Pears.—For the best ten varieties, to Isaac B. Baxter. The Committee notice a mammoth Pear, the Belle Angeviene, from Mr. Kessler, of Reading.

Vegetables.—For the best display of a market gardener, to A. L. Felten.

Celery.—For the best white and for the best red, to James Jones, from Girard College.

Broccoli.—For the best, to A. L. Felten.

Brussels Sprouts.—For the best, to the same.

HABROTHAMNUS AURANTIACUS Regel

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COLOR PLATE

COLOR PLATE
INTENTIONAL SECOND EXPOSURE

THE FLORIST
AND HORTICULTURAL JOURNAL.

CESTRUM REGELII, PLANCH.

HABROTHAMNUS AURANTIACUS, *Regel.* Solaneæ § Cestrineæ—Pentandria-Monogynia.

CHARACT. GENER.—*Calyx* subcampanulatus, tubuloso-campanulatus, poculiformis, cyathipoculiformis, 5-dentatus, 5-fidus aut 5, partitus. *Corolla* tubuloso-infundibuliformis, tubo elongato superne ampliato clavato aut faucem sæpe constrictam versus inflato, limbo 5-fido, laciniis membrana plicata parvula junctis, vel 5-partito, laciniis patentibus margine inflexis aut reflexis, æstivatione conduplicativis. *Stamina* 5, rarissime tota libera, tubo usque ad medium vel ultra adnati, inclusa; *filamenta* simplicia vel dente aucta, basi plus minus in tubum decurrentia. *Antheræ* bilobæ, orbiculares aut obcordatæ, dorso medio affixæ, minute tuberculatæ, longitudinaliter dehiscentes. *Ovarium* ovatum vel globosum, breviter stipitatum, stipite disco hypogyno circumdato, biloculare, dissepimento medio placentifero, placentis subglobosis, pauciovulatis. *Stylus* simplex, superne plerumque glandulis brevissimis obsitus. *Stigma* capitatum, subpeltatum, concavum aut bilobum, rarius clavatum. *Bacca* ovata, ovatooblonga aut oblongo-elliptica, elliptica, aut subglobosa, calyce cincta vel inclusa, bilocularis vel dissepimento obliterato placentisque coadunatis unilocularis. *Semina* pauca, compressa, dorso rotundata, facie interna angulata, hilo ventrali. *Embryo* in axi albuminis carnosi rectus; cotyledonibus parvis, foliaceis, orbiculatis, compressis; radicula tereti, infera.—Frutices *aut* arbusculæ *interdum fœtentes*, Americæ tropicæ. *Folia solitaria vel rarius geminata integerrima, breviter petiolata, penninervia; gemmarum axillarium folia extima evoluta, stipulas mentientia. Flores sæpe suaveolentes, racemosi, racemis braceteatis axillaribus elongatis, vel in corymbum, spicam aut fasciculum contractis, interdum paniculam magnam terminalem componentibus. Corollæ luteæ, rarius viridescenti-albidæ, albæ, aurantiacæ vel rubræ, aut purpureæ. Baccæ nigræ aut violaceæ, interdum rufescentes, raro albæ.*

CHARACT. SPECIF.—C.(Habrothamnus) frutescens, ramis crebris patentibus floriferis plerumque nutantibus, sicut petioli calyces foliaque subtus, pube crispa plus minus densa tectis, foliis alternis longiuscule petiolatis petiolis gracilibus sæpius tortis limbo ovato acuminato margine leviter repando, fasciculis florum in paniculam terminalem foliosam digestis pedicellatis v. sessilibus, foliis floralibus 3-4 basi stipatis, floribus sessilibus, calycis ad medium 5-fidi laciniis lanceolato-linearibus cuspidatis erectic, corollæ

aurantiacæ tubuloso-clavatæ tubo inferne valde attenuato calycem 3-plo excedente, limbi reflexi lobis ovatis obtusiusculis ciliatis, genitalibus glaberrimis, staminum inclusorum filamentis edentulis.

CESTRUM REGELII, PLANCH.

Habrothamnus aurantiacus, REGEL. Ind. Semin. Hort. Turic. 1850 collect. p. 4, adnot. †, ex WALP. Annal. Bot. Syst. III, p. 176 (non *Cestrum aurantiacum*, LINDL.)

Mr. Dunal, the learned author of the monograph of the Solaneæ, in De Candolle's *Prodromus*, recognizes in *Habrothamnus* only a sub-genus of *Cestrum*. According to this idea, which seems rational to us, it would be necessary to make of *Habrothamnus aurantiacus*, of Regel, *Cestrum aurantiacum*. But there has been for a long time in gardens a *Cestrum aurantiacum* described by Dr. Lindley (in Bot. Register 1844, miscell. 65 and in 1845 t. 22. Flore des Serres t. 33), a plant entirely distinct from that of which we now publish the figure: so, to avoid confusion, we think we should assign to this last the name of *Cestrum Regelii*.

Still little known and little distributed, this elegant species of flowers first in the garden of Zurich, about 1850. Its origin is attributed to Guatemala, and it is probably to the care of some German collector, that it owes its introduction to Europe. The color of its flowers will suffice to distinguish from the other species of the section, *Habrothamnus*, and especially from *H. elegans*, near which the appearance of its characters places it. It is evidently a precious addition to our green house shrubs. J. E. P.

In Flore des Serres.

TREE VIOLETS, AND HOW TO GROW THEM.

Humble as is the Violet beneath our feet, peering out from its own green foliage, a few blades of grass, or the decaying remains of a by-gone year, as we take our stroll in the woods and shady groves, enjoying the delightful dawn of summer again, this little pet is a general favorite. Every body knows its name and admires it. Not less so are the cultivated varieties: a greenhouse can hardly be said to be well stocked without them. Especially the "Tree," for there is no difficulty whatever, to have them in flower from November till April. This ever blooming property is one of its chief attractions, as none of the others bloom but once. There are several different colors in cultivation in Great Britain; we have grown blue, rose, and white, the two latter are valuable for variety in color, though inferior to the blue. We have only met with the blue in this country. Many

think the name of "Tree" a misnomer, and that the plant has only the creeping habit of the original type, but this is incorrect, for with proper management, a clean stem of a foot or fifteen inches, can be obtained with a beautiful little head on the top; or a cone feathering down to the pot at the will of the cultivator. Such an object clothed with flowers of the sweetness of *Violets*, needs no eulogy.

Botanists tell us, that the whole of our cultivated varieties sprung from the *Viola odorata;* another proof of the beneficence of an allwise Providence, in implanting the principle in vegetable organism, of their susceptibility of improvement for man's wants and comfort.

The following is the method we have found to succeed in their culture:

PROPAGATION.

Early in April, take the offsets or suckers and pot into three-inch pots; keeping them in the greenhouse, or what is better a frame, till they get well established and their pots pretty full of roots. Give them a shift into a two sizes larger pot, and plunge the pots to the rim under the shade of some tree where no sun can get to them. If these pots become filled with roots pretty early, they may have another shift into the next size pot, which will be large enough for them the first season. Any laterals that may show themselves during summer, should be pinched out and the lower leaves occasionally taken off to induce an upward growth.

The plants by the fall will be from four to six inches high, with a little tuft of leaves on the top from which will spring a large quantity of flowers during winter. Early in the fall the plants should be taken into the greenhouse, and placed in a somewhat shady place, having previously a little of the top soil taken off, and replenished with new.

SECOND SEASON, FORMING SPECIMENS.

Early in April, shake the soil clean from the roots, injuring the fibres as little as possible. Repot into the same size pots and treat as recommended the first season. When they have become well established, shift into seven inch pots, which will be large enough to grow them in; plunge as directed above. Those intended for pyramids, should have a tier of laterals left that will spring from the crown of the plant; these by fall, will hang gracefully down to the pot, while the centre is again elongating having the laterals pinched off till the height is obtained for a second tier of branches, and so on. For the clean stem, keep all shoots pinched off till the height required is obtained, after which it should be allowed to form its head.

The plants will last for years, and by similar treatment to the foregoing,

increase in beauty with age. They require watering overhead frequently, and occasionally sulphur applied during summer to keep down red spider. Another pest that frequently gets on them is, the "thrip" which must be destroyed by dipping the foliage occasionally into pretty strong tobacco water, and sulphur. Every care should be taken to keep the foliage healthy during summer, as their rapid progress into sizable plants and capability of producing flowers in abundance during winter entirely depends on this. Plants eat up by insects, yellow, unhealthy foliage, and inattention in watering, are the main obstacles against their sure success.

This is the only Violet we care to grow in the greenhouse, as other sorts do better in frames, or pits. In fact the *Neapolitan* is the only other kind worth growing, and that on account of its fine size and color, for the flower of the "Tree" variety, is every way equal to that of the best double Russian Violet, with the additional good quality of everblooming. For it may be had in flower even in summer, if a cool moist place is given it: but those grown especially for winter, should not be allowed to bloom, but should have the buds pinched off as they appear, to strengthen them for winter duty.

EDGAR SANDERS,

Albany, N. Y., Nov. 30. *Gardener to J. F. Rathbone, Esq.*

PLEROMA ELEGANS.

SIR:—Your correspondent's observations on the two Melastomads, (Pleroma Benthamiana and Lasiandra Splendens,) has induced me to make a few remarks upon the still more beautiful though still less known, Pleroma elegans, the cultivation of which is quite as simple and easy as any of the family. I am not aware of its having been flowered in this country up to the present time, so that to those of your readers who are fortunate enough to possess plants of it, the following remarks may be useful. This plant was sent out by the Messrs. Veitch, of Exeter, as a stove plant. But treated as such none were successful enough, either to grow a good specimen, or to flower it to perfection; however, its rapid distribution, soon put it into the hands of most gardeners, whose skill was soon turned to growing it as an intermediate or greenhouse plant, under which treatment many most excellent specimens were grown and exhibited, proving it to be one of the most attractive and useful plants of late introduction. Its natural habit is more bushy than either of the above, its leaves are of a dark shining green, the flowers are from two inches to two and a half in diameter, produced in great abundance, the petals, generally five, but occasionally six in number, are stiffer than those of any other of the family at present in cultivation, making it a most desirable acquisition; the color is a very rich purple, deepening towards the base of the petals.

Those who have plants of this kind now, should winter them in an intermediate or warm greenhouse, and water them very sparingly until March, when, if they are at all leggy, the extreme points should be nipped out to induce them to throw out a greater number of shoots; the roots examined, and if necessary a shift should be given when the new growth has began. The soil best suited for that young plant is sandy peat and leaf mould; loam should be entirely withheld in the young state of the plants, and used but sparingly at any time. The shoots should be tied out a little, and allowed to stand and grow in the greenhouse, shifted into larger pots as the roots require, the drainage of the pots must be perfect, and the syringe applied frequently throughout the growing season. But as far as my experience goes the plants should not be turned out of doors in summer time, for the exposure causes many of the lower leaves to turn brown and fall off, while their preservation is so desirable, but I would rather recommend them to be kept in the greenhouse entirely, and slightly shaded in hot weather, and as much air given as possible, neither should the plant be stopped or cut back after the first time; if done, the plant is apt to break irregularly. I have seen fine plants entirely spoiled by it, the wood being hard and the habit bushy and compact. Stopping is seldom necessary more than once. The time Pleroma elegans flowers in England, is from July to September, but it can be managed to flower at almost any time during the Spring, Summer, and Autumn months, and when in bloom, all care and attention will be richly rewarded.

H. CHITTY.

EFFECT OF FROST ON CERTAIN PLANTS.

THOSE who have observed the effect of a sharp early frost on the stems of Heliotropes and other plants, will be interested in the following remarks of the Rev. Mr. Berkeley, which we extract from the Gardener's Chronicle of November 18th. We have frequently seen the curled plates of ice shown in the figure, springing from the stems of Heliotropes after a cold night.

It is now some years since Elliot described, in his "Sketch of the Botany of South Carolina and Georgia," certain icy fibres which appeared day by day on the stems of Pluchea bifrons, D. C. About nine years later, Sir John Herschel published a notice of a remarkable disposition of ice

round the decaying stems of vegetables; and more recently Dana and Le Conte have described a remarkable exudation of ice from the stems of vegetables, which the latter has illustrated by the occasional protrusion of icy columns from certain kinds of earth during frost. Dr. Caspary had an opportunity of studying a similar phenomenon in the botanic garden at Schöneberg, in the course of last November; and, after a careful study of all the attendant circumstances, he has lately given the result of his observations at considerable length in the "Botanische Zeitung," September 22, 1854. Notwithstanding some little discrepancies, there is no doubt that the several cases are substantially the same, though modified by particular circumstances. The matter is so interesting that a brief notice cannot fail to be acceptable to many of our readers; first of the phenomenon itself, and then of the causes from which it seems to be derived.

On the morning of the 14th of November, several plants,* both annual and perennial, all of them cultivated in the open ground, and in full health and vigor the previous day, presented a very extraordinary appearance. The bark was variously split and separated from the wood, from which two kinds of icy formations of considerable size projected, the one consisting of fibrous strata, the other of thin vertical sheets. These were not confined to the base of the stems, but extended even to the highest and thinnest branches, some of which were three feet or more above the surface of the soil. The first species consists of small thin horizontal threads, perpendicular to the stem, closely pressed to each other, but not separable, so as to form a continuous layer 1½—4 m m. (,059–, 157 inch) thick, and from 30–90 m m. (1,18—3,54 inch) long, occupying from ⅓ to ⅔ of the whole woody cylinder. The second, which was extremely beautiful, and far more common, exhibited vertical sheets from 10—160 m m. (,39—6,29 inch) long by 10—30 (,39—1,18 inch) broad, and as thick as strong paper, springing in a radiating direction from the whole or part of the stem, sometimes to the number of 30, more or less, irregularly curled and undulated, with the margin entire or minutely crenate, of a pure snow-white, or clear as crystal, and resembling some richly lamellated coral.

The plates themselves were marked with horizontal lines, as though the whole were formed of laterally confluent fibres, which sometimes projected, especially in the smaller upper twigs, in the form of a beautiful fringe. The wood itself was often split, but the plates never projected from the fissures, but originated on the exposed surface of the wood itself. The phe-

* Perilla arguta, *Benth.*; Tagetes bonariensis, *P.*; Alonsoa incisifolia, *R.* and *P.*; Cuphea pubiflora, *Benth.*; cordata, *R* and *P.*; platycentra, *Benth.*; Heliotropium peruvianum, *L.*; Manulea oppotitifolia, *Vent.*; Lantana abyssinica, *Otto* and *Diet.*; aculeata, *L.*; Calceolaria perfoliata, *L.*

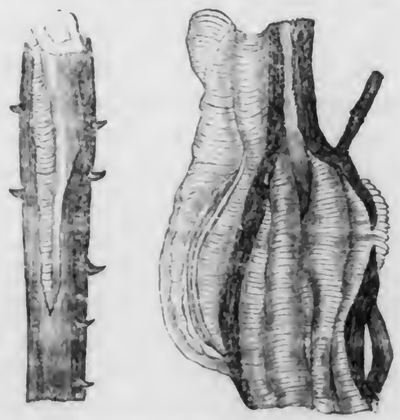
nomenon was strictly confined to exotic species cultivated in the open ground, and consequently with their roots well developed and capable of imbibing large quantities of fluid without intermission. It occurred, moreover, on the first night that the temperature of the air and surface of the ground descended, except as a transient minimum, in a marked degree below the freezing point, and that accompanied by a strong dry wind, which must have been very favorable to evaporation. The accompanying illustration represents a small portion of a branch with either kind of formation, the prickly twig of Lantana aculeata exhibiting the first species, while the second is a Cuphea cordata.

This curious formation admits of more than one explanation. Le Conte regards it as a purely physical phenomenon, while De Caspary, neglecting Herschel's view, leaves it uncertain whether the ice arises from the plant itself, or from the comparatively warm earth beneath, the evaporation from which is conveyed upwards by the plant, as by a kind of chimney. Le Conte considers the lamellar formation on the plants of the same nature with the pillars of ice, consisting of innumerable thread-like spun glass, which sometimes spring from the surface of the soil, arising from the innumerable capillary tubes which are contained in its substance. These masses occur only on the surface of the soil, which itself remains unfrozen. Supposing, then, a loose and warm soil to be saturated with moisture and exposed to moderate frost, since the soil is a bad conductor of heat, the uppermost stratum alone would be cooled down to the freezing point: and since the resistance to lateral expansion is less on the surface than it is lower down, the first effect of cold will be to make the ends of the capillary tubes or pores conical or pyramidal. The sudden chilling of the surface-water produces a rapid and forcible expansion, which, in consequence of the resistance offered by the sides of the cones, not merely pushes the thready pillar of ice forwards, but also causes it to protrude in the direction of least resistance, namely, perpendicular to the surface. The conical extremities thus become free,fresh fluid follows by capillary attraction from behind, the formation and protrusion of ice is again effected, and the same process is repeated by paroxysms till a mass is formed three inches or more in length. "Now if this be compared," says Le Conte, "with what takes place in the Pluchea, similar conditions will be found to exist. The porous pith supplies a constant flow of warm fluid from the soil, while the cuneiform medullary rays present the mechanical conditions necessary for the exercise of a protrusive power in the required direction."

It is not true that the moisture does ascend by the pith; but making the necessary corrections, it is easy to understand that masses of ice might be

formed in this way on the plant, by causes similar to those which exist in the soil. Our limits prevent our examining other parts of Le Conte's explanation, or pointing out the errors which seem to be involved in it. But allowing that this is sufficient to account for the formation of the compact fibrous masses of Lantana, it does not apply to the lamellar sheets which surround the stems of other plants. Dr. Caspary therefore inquires what organs there are in plants disposed with sufficient regularity and of proper length to give rise to plates extending sometimes several inches down the stem, and thrusting off the bark in every direction.

The only organs answerable to this character are the vascular bundles, and to these therefore his attention has been turned. In all the instances which came under his observation, he found the walls of the vessels pitted, and the only difficulty of great consequence which met him, was the uncertainty that exists as to the functions of the vessels. That they contain fluid at an early stage is certain, because they are but modifications of cells; but whether they carry fluid when arrived at maturity, except with rare exceptions, is far from certain. Allowing that they were gorged with fluid, in the plants in question, the lateral pores might readily convey it to the neighboring elongated tissue, and so be subjected to the freezing temperature which had penetrated through the bark. It seems, however, to us quite as probable that the fluid might be more energetically carried through the cells with which the vascular bundles are surrounded, than through the neighboring tissue; and if so, we have a series of lines corresponding with the vessels, where the icy plates might be formed, without assuming the doubtful position that water is carried through vessels which seem more peculiarly destined to convey air, with rapidity and abundance sufficient to produce the enormous masses of ice which appear upon the stems—masses which have a very high ratio to the quantity of water which could pass through the plant within the time of the formation of the ice, under any ordinary circumstatances.



THE WELLINGTONIA GIGANTEA.

Until this time nothing has contradicted the ingenious observation of Buffon, on the comparative size of the animal species in the old and new Continents. To the first, belongs those gigantic pachyderms, whose appearance recals the lost race of Mastodons.

America and Oceanica seem, on the contrary, less endowed in this birth of large animals. Will it be the same in the vegetable kingdom?

One would have supposed it, while the famous Baobab of Senegal, whose largest trunk, measured by Adanson in 1749, was 78 feet in circumference, that is 27 feet in diameter, was thought to be without a rival: but this vegetable mass, only attained a height of 70 feet. India has its gigantic Banyan Figs, (*Ficus religiosa*) and its *Tectona grandis;* Asia Minor its Cedars; Europe its historical Chestnuts, Oaks, Elms and Lindens. To these colossal plants of the Old World, America opposes Palms with tall stems; Figs with massive trunks: Van Dieman's Land, its enormous *Eucalyptus globulus*, and its Huron Pines (*Dacrydium Franklinii.*) But in this congress of giants disputing the pre-eminence, the king of all of them has just entered upon the scene: the one which proudly bears the name of *Wellingtonia gigantea*, and which, native of the Rocky Mountainsin the interior of California, assures to the New World the honor of possessing the largest plant known.

The exploration of the basin of Oregon and of Upper California, by the unfortunate naturalist traveler Douglass, made known to the botanical world, now twenty-five years ago, the existence of Conifers of immense size. Such was the *Pinus Lambertiana*, of Oregon, such, especially, was a tree of California, about which Douglass expresses himself as follows, in a letter published by Sir William Hooker, (Companion to the Botanical Magazine,) (Vol. 11, p. 150.)

"The wonder of California vegetation is a species of *Taxodium*, which gives to the aspect of the mountains of this country, a something strange and imposing, which removes you far enough from Europe. At different times I have measured examples 270 feet high, by thirty feet in cirumference at three feet above the ground, a small number measured 300 feet in height, but without any greater size than those I mentioned.

What was the supposed *Taxodium* of Douglass? No specimen, seed or description was known to botanists. It was therefore from a very hazardous conjecture, that Sir William Hooker figured in his *Icones plantarum*, (tab. 379,) as being probably the tree in question, and at the same time

the *Sequoia sempervirens*, sterile branches of a conifer, found without a name in Douglass's collections. Better informed by later discoveries, the editor of the *Botanical Magazine*, recognizes now in these branches, and consequently in the figure quoted, another Conifer lately introduced in European Horticulture, the *Abies bracteata*, (see Bot. Mag. t. 4.640 and Flore des Serres, t. 899). As to the monster tree of Douglass, Mr. W. Lobb, following certain very plausible conjectures, thought that this would be the true *Sequoia sempervirens*, so that the *Sequoia gigantea* of Endlicher, founded on the measurements of the plant of Douglass, and on the figure in Hooker's *Icones*, which represents the *Abies bracteata*, should be erased from catalogues as an imaginary being, formed of extravagant elements.

By a happy circumstance, one of the most skilful purveyors of the horticultural establishment of Messrs. Veitch of Exeter, Mr. W. Lobb, in his recent exploration of California vegetation, has just assured to horticulture the possession of a conifer more collossal than the *Taxodium sempervirens*, a tree imperfectly known as to its botanical characters, but which vegetates at present in England, and which it is hoped will become as much distributed as the Deodar Cedars. This tree, entirely new to science, has received from Dr. Lindley the name of *Wellingtonia gigantea*, in honor, it is said of *the greatest hero* of modern times. Many Frenchmen would take away the epithet to make it correct, but the English language ignores this subtle distinction.

The foliage of grown specimens of the *Wellingtonia gigantea*, can in no way be confounded with that of the *Taxodium*; it resembles more that of the *Juniperus*. The branches, slender, filiform and pendant are covered with little imbricated leaves in three rows, alternate, straight, appressed, ovat-elanceolate, acute, coriaceous, pale green. On the young specimens from seed, which are not, so to speak, characterized, the leaves are more dispersed, oblong subulate, pointed or mucronate, keeled on the back, flat on the front, except a little swelling in the middle. The cones are about the size of those of Pinus silvestris, but resemble a great deal in their structure, according to Sir William Hooker, those of the *Sciodapytis* of Siebold and Zuccarini, a Japanese genus entirely different in aspect and foliage. These cones, such as they possess in Europe, after complete maturity and distribution of the seeds, are oval, obtuse, sessile, formed of a thick and cylindrical axis, on which are inserted without any articulation and by an enlarged base, woody, divergent scales, whose thickness is increased by the suture of the bract with the corresponding scale. The top of each scale forms a convex dilation, conversely rhomboidal, keeled inversely and forming an umbilical depression. Under each scale, Dr. Lindley says, are found seven seeds like those of Sciadopytis in number and form, being nearly orbicular, compressed, small, less than a line long, slightly winged at the sides.

J. E. PLANCHON,
In Flore des Serres.

PORTULACCA ALBA STRIATA.

The principal varieties of Portulacca under cultivation, are the Crimson, Scarlet, Pink, Yellow and the White. The variegated kinds are very numerous, but not much known, and were first obtained by myself, by crossing the crimson and yellow about four years ago, and the hybrid, shown in the illustration from the crimson and white last year. The white variety has always had a sporting character, appearing sometimes with a pure crimson flower and sometimes striped and variously marked, but so fickle as to possess but little interest. The Alba striata, now two years old, sustains thus far a permanent character, with this exception, that occasionally it has an

extra dash of deep crimson and sometimes (once only during the last season,) it has a pure crimson flower, but in no case has it ever sported back to the pure white.

The Portulacca, mixed in a bed will not readily cross themselves, and the striped kinds were very difficult to obtain, several hundred flowers having been fertilized to produce a single specimen. From their disposition to revert to the original *selfs*, any remarkable and valuable varieties must be propagated by cuttings and kept through the winter. They may be easily wintered in the greenhouse by plunging the pots to the rim in sand and keeping the plants rather dry, or if unchecked by cold or frost in the fall, they may be kept growing, with plenty of heat; especially if the plants are from late summer cuttings.

CHAS. G. PAGE.

Washington, D. C., Dec. 11, 1854.

STEPHANOTIS FLORIBUNDA.

This is a fine evergreen twiner, with dark green coriaceous leaves, and very fragrant white flowers. It is a native of Madagascar, and belongs to the natural order, Asclepiadaceæ.

By many, this is thought to require a stove, and those having only a green-house and hot-bed, debar themselves the pleasure of its possession. When it is kept blooming during the winter in a stove, it seldom blooms so freely as when it has a few months' rest in a cooler place.

Without occupying more room with preliminary remarks, I will suppose any one to have a good strong plant, which can be obtained from any nurseryman; place it on a front shelf in the green-house for the winter months, taking care not to give much water, or it will become a little yellow. When spring approaches, tie it neatly to a balloon-shaped wire trellis, covering the bottom of the trellis first. The soil I use is turfy sandy loam, but it will grow in porous soil of any description. About the middle of March, shift it into a size larger pot; I keep it rather underpotted, as I do not think there is anything gained in beauty either of leaves or flowers, by the one shift system with the Stephanotis. After I have repotted a plant a few seasons, until I get into a ten inch pot, I turn it out and cut off a little of the ou side of the earth and roots, and thus grow it for awhile in the same pot. After repotting, I plunge it into slight bottom heat in an early cucumber frame, or in a hot-bed made for propagating bedding plants. With several plants started a few weeks after each other, they can be had

in bloom from the end of May until near August, and will take the place of plants put out of doors in the Summer.

WM. GREY.

THOUGHTS ON THE CULTIVATION OF FRUITS AND FLOWERS.

An old subject and truly a hackneyed one, perhaps some one who sees the heading of this article will say. It is indeed an old subject, but nevertheless one of increasing interest throughout the length and breadth of our land. Even in "our village," we see by the choice and beautiful selections of flowers that greet us around almost every little home that this interest is here too deeply felt. And even now we are anticipating the time when we shall be prepared to show with any city in the land, gardens and greenhouses adorned with every plant that can charm the eye. And their beauty and luxuriance shall also tell that we are well versed in all that pertains to their culture.

Already we are assured by many who have visited the northern and eastern gardens, that in the cultivation of roses we now excel, and that ours were so far superior that it was difficult for them to recognize in the sickly and stinted plants of many of those gardens, the pets so much cared for at home, and which have repaid that care with a beauty and a luxuriance of growth seldom equalled and never surpassed.

We know that all this cannot be claimed from our superior treatment, we know that our climate is much more adapted to the growth of delicate roses; but when we recollect that we have seen the same roses growing, but oh how differently, in places of the same latitude, we are constrained to award some merit to ourselves for superior care and skill.

Thanks to the pages of your valuable journal for much that has proved useful to us, and for the stimulus that it has given to our exertions in horticulture; exertions that have already been richly repaid.

But as yet, Mr. Editor, the ladies *alone* of our village are giving their attention to these things, the culture of fruits and flowers. They do not trust alone to an inexperienced gardener, for no other kind is to be had here now; they do not purchase a rare plant and trust to chance whether it grows or not; no, with their own hands they tend it, and in due time are repaid by the unfolding of its lovely flowers. However, a few of the "lords of the land" are beginning to give us their countenance, and when

their eyes are feasting on beauty that has been nursed by our humble efforts, reward us with a smile. But, on the other hand, there are others who croak at all this as "nonsense," who even give a friend, who has paid a trifle for a rare plant, a look which says, "you had better spend your money for something else; what good does all this do? They may well ask the question, for they know not the resources the humblest citizen has, when the little plat of ground before his door is tastefully adorned with flowers; they know not with what pleasure he turns from the toils of the day to his own quiet little home, where in the budding flowers he sees new beauties opening every day, and feels, that although he cannot look around on "broad acres, all his own" yet it is his to enjoy the beauties of creation, to look up through nature unto nature's God. They know not the pleasurable emotions which fill the soul of one who turns from a world which has often proved hollow and heartless, to the companionship of flowers.

Let those who talk so much of what *they* consider useful, take with us a glance at the surrounding country. On all sides we see large plantations. In the grounds immediately surrounding the abodes of their owners, is there anything pleasant for the eye to rest on? No, the old neglected looking house, the rude patched up fence, and stables and pig pen, often in front of the dwelling, sadly attest that all felt is a grovelling devotion to mere gain. And, let me ask, would it not be better to spend a little of their rapidly increasing wealth in beautifying and giving an air of comfort to their homes? Yes, and we believe soon would be felt and seen, its refining and elevating effects, in the manners and habits of the families of the neighborhood. The home-ties would be strengthened, and the youth, who in after years goes forth from his native land, could, with pride, look back to the old homestead, a beautiful picture hung up in his memory, and long to rest from his wanderings beneath its peaceful shades.

But as it is, their heads are growing gray in heaping up wealth they never take time to enjoy, when they could have about them all that is beautiful to the eye and delightful to the taste.

We do not say that there are exceptions to this state of things. In the course of a day's journey, as an oasis in a desert, a home may meet the eye of a traveler which tells him that the fragrance of the flower is here sometimes wafted on the wind, as well as the fumes of tobacco. We are pleased to know some in this place whose hearts have been touched by this genial influence; who have the means and are making their homes all that will be delightful in after years to turn to.

Not more than twenty miles from hence, in an almost inaccessible spot a horticultural garden smiles, often resorted to from this and other places. Let me ask those who visit it, if they have not felt, whilst partaking of the hospitality always there extended, that there is a wide difference in the manners of one who has given his time to horticultural pursuits, and those of him whose whole time is given to raising tobacco. The spirit of content and repose that pervades the former is in the latter, never seen. We hope to see a taste for the pursuits we advocate becoming more general, and that ere long its effects will be seen and felt about our country.

A Lover of Flowers.

Clarksville, Tennessee.

(From the Germantown Telegraph.)

PRUNING GRAPE VINES.

The grape vine is perhaps the most useful fruit-bearing plant that we possess; at all events it is more available than any other, and good crops can be secured in situations where the growth of any other fruit would be impracticable. Any one having a square yard of ground unoccupied, near their dwelling, may plant a vine and train the branches on the walls. It is surprising that this system is not more generally practised. What could be more beatiful than clusters of grapes hanging in profusion and greeting the eyes from a parlor window? Or how could a dessert be more conveniently secured than by opening the casement and gathering a dish of this luscious fruit? Many opportunities of this kind are overlooked, and many a bare wall and unsightly projection might be improved by the addition of grape vine. Indeed many of our modern houses are so bedecked with ornament, and like the "Rural cot of Mr. Knott," as described by Lowell, so full of

> "Lord knows what, of round and square,
> Stuck on at randum everywhere."

That the introduction of climbing plants upon these otherwise apparently useless additions, would at last show that they were not altogether divested of utility.

There are various systems of pruning and trimming grape vines; none of them perhaps deserving unqualified censure, at the same time there is much room for improvement in this necessaray operation.

The principal methods may be classed thus: 1st, *short spurring;* 2d, *alternate spurring;* and the *long cane* or *renewal* systems.

Each of these methods has its supporters, and good fruit and good crops are produced by them all, an additional proof that it is not by paying strict attention to any one particular point, but rather from a happy combination of all the essential elements of culture, that we are to derive constant success. I propose offering a few remarks on these systems, and before entering into detail upon their respective merits, a brief exposition of the process of vegetable growth, will assist us greatly in arriving at a proper understanding of the subject.

When a seed is placed in a germinating medium, it sends a shoot upwards in the air, and roots downward into the earth. The seed contains within itself the nutriment necessary for this process; but as soon as the young plant is thus formed, its mode of existence is changed, and it now depends upon the air and soil for its farther developement. The young root immediately ab orbs matter from the earth which enters into the stem, and from that to the leaves, where it is decomposed by the action of light. This elaborated sap is then returned downwards enlarging the stem, and passing into the roots, also extends their formation. It is considered that the carbonic acid and other matters absorbed by the roots, are of no value until they undergo this decomposition in the leaves: consequently the increase of size in the plant, the quantity of its secretions, and extension of roots, are all dependent upon the amount of foliage. Any system of pruning, therefore, that involves a removal of leaves, must also involve the health and vigor of the plant. It is an axiom with horticulturists that summer pruning weakens, while winter pruning strengthens a tree. Hence on strong growing barren fruit trees, summer pruning is practised in order to check their vigor and cause them to bear; while on the other hand, an old or sickly tree will generally start with renewed vigor if severely pruned down in winter. These simple rules should be kept in view while discussing the various systems of pruning.

The *short spurring* system of pruning grape vines, is very generally practised and easily understood. In practice, a single shoot is encouraged until it reaches the desired length. The bearing shoots issue at intervals from this main shoot, and are cut close down to it annually in the winter pruning. The summer pruning consists in pinching out the extremity of every shoot,

one or two leaves beyond the fruit; all lateral growths are also removed on their first appearance. Growth is thus prevented from extending, and the sap is consequently concentrated into the short branch and fruit. The leading shoot is also stopped in its longitudinal growth to give more vigor to the side branches. It will be seen that this continued pruning during growth, will check the progress of the roots, and although it is the most popular method of treating the foreign grape under glass, and if otherwise well managed will insure heavy crops, I am convinced from extended observation of the practice, that, after a few years, the plants gradually decline and do not burst into growth with their former vigor. This method is not at all suited for our native sorts.

Alternate spurring is an improvement upon the foregoing, and for amateurs who wish to cultivate a variety of foreign grapes in one small house, or where the grapery also serves the purpose of a greenhouse, I consider it the best method that can be adopted.

In pruning on the short spur plan, the shoots are cut down to one eye or bud, thus sacrificing larger and better developed buds nearer the extremity of the branch. To remedy this, and at the same time secure to the fruit all the advantages of close pruning, as well as encourage the formation and extension of roots by retaining a greater amount of foliage, led to the practice of selecting the most prominent bud on the branch and pruning to it, without reference to its distance from the main stem, at the same time all other buds are cut out except the lowest. Supposing the branch has twelve buds, and the sixth (from the main stem) appears most promising, the branch is cut to within half an inch of it. It and the first bud are undisturbed, the immediate four buds are cut clean out to prevent them growing. When growth commences, these two buds will form two shoots, whose future treatment is quite distinct. The extreme bud produces the present crop, while the lower bud forms a shoot to bear the next year's produce: if any fruit appear, it should be promptly removed. The summer management of these shoots, is simple. The bearing branch should have its point pinched out two or three leaves beyond the bunch of fruit, and all subsequent efforts of growth quickly checked. The lower, or non-bearing branch, on the contrary, should not be disturbed until after midsummer, when the extreme point should be pinched off. When the fruit is cut, the branch that produced it should be cut clean off. The shoots for future bearing will now ripen thoroughly, and in winter pruning, undergo the same treatment as their predecessors—pruned down to the best bud, all others being removed except the lowermost, as before.

The *long cane renewal* system is in my opinion most worthy of recommendation, especially for out-door culture; native grapes do not require vigorous pruning, if not allowed to bear too heavy a crop, which ruins half the vines in the country. When such is the case, a severe winter pruning is necessary. The routine management under this system, is as follows: The first year the young plants should be encouraged to grow as luxuriantly as possible. No pinching or pruning of any description is requisite until the leaves fall off at their natural period of decay. The plant should now be trimmed to a single clean rod for ten feet in length. This ends the first season.

The second year a few bunches of fruit will appear on the side shoots, and if the stem is three-fourths of an inch in diameter, two or three may be left, although it is better to remove the whole than impair the health and vigor of the plant. The summer pruning will consist in pinching the points of all the side branches when about eighteen inches in length. The leading shoot is not to be disturbed. A shoot from the lower part of the plant is to be encouraged; this also, should receive no check in its summer growth. The winter pruning will consist in cutting all the side shoots out close to the main stem, the leading shoot and the one from the bottom should merely be shortened, leaving five or six feet of young wood to each.

The third season, a tolerable crop of fruit may be expected; the main stem will fruit its whole length; and should any fruit appear on the bottom shoot, it should be removed. The main stem should be summer pruned as recommended in short spurring, which will encourage the fruit. The secondary leading stem should be managed similar to the main stem last season, and an additional young rod encouraged from its base, as before. The winter pruning will also suggest itself on reference to the foregoing remarks. The oldest main stem may be removed altogether, thus introducing a young cane yearly, and cutting the oldest one out. It is not necessary to adhere closely to this periodical renewal, as the canes can be fruited one or more years on spurs if desired.

Pruning on this method, combines all the advantages of close spurring, while the additional quantitity of foliage retained, supports a healthy and increasing root action; and farther, the principal removal of wood, taking place in the winter pruning, imparts renewed force to the plant. This system enables us to keep a plant in health and vigor in a small space, or extend the branches in proportion to the roots, which is the most natural manner of treating a plant. Disease is very frequently engendered by unskilful and injudicious pruning, and the more it can be dispensed with the better, consistent with the objects of the cultivator.

With regard to the proper season for pruning, I consider the fall and early portion of winter the best. Immediately on the fall of the leaf is undoubtedly the most advantageous to the plant, as the sap stored up in the buds during winter, is economized and hastens the growth during the following seasons: a desideratum of much importance both with the foreign and native grapes in cultivation.

WILLIAM SAUNDERS,
Landscape Gardener, Germantown.

Dec. 7, 1854.

DR. LEIDY'S FLORA AND FAUNA WITHIN LIVING ANIMALS.

It appears from an article in the "Florist and Horticultural Journal," published in the United States, that we had inadvertently given great offence by our review of the work above mentioned. On a reperusal of that review we find it very difficult to conceive why it has been taken in such bad part, and the more especially as our object in writing it was to induce those persons who had already purchased Dr. Robin's work, which has had a very large sale in England, to add to their libraries the work of Dr. Leidy, as containing information not to be found in Robin; and we were the more desirous of recommending it, because the only remuneration, as far as we believe, which the authors of communications to the Smithsonian Institution can look to, is the sale of the copies which are placed at their disposal by the society.

The passage which is more particularly called in question stands as follows. "It may be true that it does not contain much which may not be found in Robin's second edition of his admirable work on those fungals which grow on animals; but the illustrations are in some instances far more complete, and well worth the attention of every botanist and physiologist who may chance to be interested in the subject. We would point out more especially the plates which represent the curious parasites which infest the intestines of different species of Julus, and the several entozoa which live in their company; for though the principal of them are not overlooked by Robin, there is nothing in his plates as regards these particular productions which can for a moment be compared with Dr. Leidy's copious and excellent figures." Now, what "remarkable errors" or "perversions" are contained in the above passage we cannot conceive.

There is no question whatever as to the originality of the observations of Dr. Leidy, a question altogether beyond the scope of our journal, which aims at little more in its reviews than an indication of the sources from whence trustworthy information can be obtained; and the whole tendency of the

passage is to show that, on some points, Dr. Leidy's work contains information and illustrations superior to what is presented by the popular publication of Dr. Robin. We beg too, to observe that at the time our notice was written, we had read every word of Dr. Leidy's book, and had gone through that of Dr. Robin page by page with a view to ascertain what additions had been made in his second edition. If, therefore, we have erred, it has been with our eyes open. If we had reason to believe that we had given the slightest pain to Dr. Leidy, we should at once write to him personally to express our regret; for we have received too many kindnesses from American botanists, and are in too intimate relation with several, to wish to give a moment's dissatisfaction where we have met with nothing but the most kind and honorable feeling, without a particle of captiousness or jealousy—a fact to which we have more than once borne testimony in this journal, as also to the rapid strides which every branch of botany is making in the United States; and those American botanists, such as Asa Gray, who know most of England, are well aware that such kind feelings are universal amongst those who are most worthy of estimation for diligence and talent. Much as we admire genuine patriotism, we have no sympathy for the man of science, however great his abilities may be, who confines his powers of vision to his own horizon, and will acknowledge no merit with which he is not personally or nationally identified.—*Gard. Chron.*

THE CLIMATE OF THE CRIMEA.

In the Gardener's Chronicle we find the following account of the climate of this, at present, interesting place:

A more trustworthy account of the South Crimea, is to be found in the writings of PALLAS, the great Russian Botanist who lived at Akmetshet, or, as it is now called Sympheropol. In one of his works this author says:

"The mildest and most fruitful region in all the Russian Empire is, that continuation of valleys arranged in a natural amphitheatre, at the southern base of Taurida, (the Crimea), along the coasts of the Black Sea. The climate is little different from that of Anatolia and Asia Minor; *winter is hardly felt*, the Primrose and the Crocus appear above the ground in the month of January, and the Oak retains its green foliage throughout the year. No part of Taurida, perhaps of the whole empire, affords the botanist a greater variety of plants, or the husbandman a richer harvest. The ever-verdant Laurel grows beside the Olive, the Pomegranate, the Fig,

or the Date tree, which might have been brought to the country in ancient times, by Greek colonists. The manniferous Ash, the Mastich, the Sumach, the Bladder-nut, the sage-leaved Cistus, the Emerus and the Arbute of Asia Minor, flourish in the open air. The Walnut and almost every kind of fruit tree thrives in the woods, or rather the natural gardens in the valleys. The *Caper bush is scattered along the coast*, the wild Vine reaches to the tops of the highest trees, descends again to the ground, and forms, with the Viburnum, festoons and garlands. High hills, masses of rocks, streams and cataracts, verdant fields and woods, and the sea that bounds the horizon, render the landscape equal to any imagined or described by poets. The simple life of the good Tartars, their cottages cut in the solid rock and concealed by the thick foliage of surrounding gardens, the flute of the shepherd, his flocks scattered on solitary hills, remind the stranger of the golden age. The traveler leaves the people with regret, and envies the destiny of mortals ignorant of war, the frauds of trade, and luxury accompanied with all its vices."

Although there is a dash of fine writing in this statement, the facts included in it give the Botanist satisfactory proof that the winter of the South Crimea, has little to be dreaded. Where the Olive and the Caper bush, the Mastich tree and the Fig tree find themselves at home, there can be no serious cold. The Caper bush more especially, affords unmistakeable evidence of a climate where a hard winter is unknown; and we know from other authority than that of PALLAS, that it is an extremely common plant; in fact, the Capers of the Crimea, are a common article of sale in the southern provinces of Russia.

It is undoubtedly true, that occasionally there are exceptional winters. PALLAS himself informs us that, in 1787, the frost was so intense during the most boisterous north winds, that not only the whole sea of Azof, together with the Bosphorus, but also great part of the bay of Kaffa, and several creeks of the Black Sea, were covered with ice sufficiently strong to support the weight of persons crossing both on foot and horseback. But this seems to have occurred on the north-eastern coast; the southern shore from Balaklava to Alouptka, is sheltered from these cold winds, and it is there that we presume the troops will winter, if they winter in the Crimea at all.

COLD GRAPERIES.

One of the most valuable appendages to a country residence, and which yields a speedy and most luxurious return for the outlay, is a cold grapery.

This is simply a frame building, with either a span or lean-to glass roof, for the cultivation, without heat, of such varieties of grapes as are not perfectly hardy out of doors. The construction is very simple, being for a lean-to house merely a double frame, two feet in front and twelve feet high at back, nailed to substantial posts set in the ground from three to three and a half feet, with the intervening space filled with tan closely rammed down. The width should be sixteen feet, admitting of two lengths of sash. Such a house is estimated to cost not more than $8 per running foot.

It may not be generally remembered that most of the splendid bunches, which grace the fall exhibitions of our Horticultural Societies, particularly in the cities, are grown with trifling expense in houses of this description. At the late State Fair, bunches were exhibited by David S. Brown, from his graperies in Delaware County, four of which weighed 25 lbs. 2 oz. One bunch with every grape perfect and large, weighed 6 lbs. 12 oz. H.W. S. Cleaveland, Burlington, N. J., for several years successively carried off the premiums of the Philadelphia Horticultural Society, for his fine black Hamburg grapes also grown in a house without heat. Indeed, we are satisfied, independent of the luxury of such a desert for one's own table, they may be made a source of great profit. Mr. Cleaveland's grapery, which we have visited, was a very simple affair, formerly used for propagating Multicaulis, but he had a fine, deeply dug, well prepared border outside, twenty feet wide. His grapes were always sold beforehand to one establishment in Philadelphia, at fully remunerating prices and the demand was always greater than the supply. It is a matter of *some* account at least, for a farmer to save *time* in his marketing. A crop he has merely to deliver at one place and receive his pay, without waiting for customers, in a market house exposed often to inclement weather, has certainly one great recommendation over ordinary and more bulky farm produce. A cold grapery 100 feet long, at $8 per foot, would cost $800, the interest of which is $48. We believe a *net* interest of twenty per cent would be obtained by erecting a cold grapery, instead of putting the money out on mortgage, as our farmers generally do with their surplus cash at the end of the year. The attention required would be but very slight, and such as could readily be performed by the females of the family.

So accustomed are we to an unvarying rotation of corn, oats, wheat, potatoes, that we have but little expectation our hints will be acted on to much extent by our agricultural friends; still we do not fear, to recommend, to hundreds, of our readers in the country to build a cold grapery both as a source of pleasure and profit. We have made the suggestion, and we hope at least they will think of it, and reflect upon it. The varieties we recommend for this purpose are black Hamburg, white and grizzly Frontignan, and golden Chasselas; but the black Hamburg most especially. As regards the routine of culture, Downing says:

"In a vinery without heat this is comparatively simple. As soon as the vines commence swelling their buds in the spring, they should be carefully washed with mild soap suds, to free them from any insects, soften the wood and assist the buds to swell regularly. At least three or four times every week they should be well syringed with water, which when the weather is cool should always be done in the morning. And every day the vine border should be duly supplied with water. During the time when the vines are in blossom, and while the fruit is settling, all sprinkling or syringing over the leaves must be suspended, and the house should be kept a little more closed and warmer than usual, and should any indications of mildew appear on any of the branches it may at once be checked by dusting them with flower of sulphur. Air must be given liberally every day when the temperature rises in the house, beginning by sliding down the top sashes a little in the morning, more at mid-day, and then gradually closing them in the same manner. To guard against the sudden changes of temperature out of doors, and at the same time to keep up as moist and warm a state of the atmosphere within the vinery as is consistent with pretty free admission of the air during sunshine, is the great object of culture in a vinery of this kind."—*Farm Journal.*

AMERICAN POMOLOGICAL SOCIETY.

We have received from M. P. Wilder, Esq., a copy of the proceedings of the third session of the American Pomological Society, held in Boston in September, 1854.

It forms an octavo volume of over 250 well printed pages. The contents of the first 30 pages are the address of the President, and a list of the officers and committees. The state reports follow, occupying 100 pages of very interesting matter. Eighty pages following contain the discussions.

The remainder is filled with several reports, lists of fruits classed, and of officers and members of the society.

The proceedings are to be distributed only to members. New members paying the biennial subscription, two dollars, to Thomas P. James, Philadelphia, the Treasurer, or to Marshall P. Wilder, President, Boston, Mass., can be supplied.

It is one of the most useful guides in the choice of fruits and their qualities in different localities we can recommend.

Messrs. Meehan and Saunders, Nurserymen and Landscape Gardeners, will act as our agents in Germantown and its vicinity, and will receive all money due us there.

ASPARAGUS.

In answer to an inquiry as to the advantage of deep-planting Asparagus, the Americant Agriculturalist gives the following:

In meeting the wants of our correspondent, it will be necessary to go a little into detail, in our remarks upon this earliest and best of the vegetable products of the garden. If people only knew how to cultivate Asparagus in its perfection, they would welcome the month of May for the delicacy, almost as warmly as for its flowers; and, judging from the tall spikes that make their appearance at that date in our own garden, they might save themselves the trouble of rearing May-poles, and hang out their flowery festoons and garlands upon poles of their own growing.

We have no experience in deep planting, because we think we have a more excellent way. The deep planting which is resorted to by some of the English gardeners, and which, we presume, was introduced by them into this country, is unphilosophical, and is condemned by the best authorities on gardening. The Gardeners' Chronicle, one of the best English Journals devoted to this art, says, in an article upon this vegetable: "The Asparagus being brought to the requisite state of vigor, the next question is, how to secure the necessary degree of succulence, which it never has beyond two or three inches in an English market, and not often anywhere else. That succulence will depend upon temperature as much as upon other causes. The warmer the Asparagus bed is kept while the plants are rising, the more brilliant they will be, provided the temperature of the soil

does not rise 75° at the most. Now, under ordinary circumstances, every thing is done to keep it cold; buried twelve or thirteen inches below the surface, the influence of the sun is slowly felt, and very imperfectly into the bargain. It is only when the roots are lightly covered by some rapidly conducting material, that the sun can exercise his proper influence, unassisted by artificial contrivances. Hence one of the greatest faults the Asparagus-grower can commit, is to bury his plants deep. Only observe Mr. Kendall's practice: his plants are just covered with soil resting upon a deep bed of the most nutritious matter. The earliest rays of the sun are felt in such a case, and as soon as the dormant energy of the plant is roused, it continues to be exercised without a day's interruption.

Unquestionability the deep-planted beds that succeed well, owe their success to the depth and richness of the soil rather than to the deep-planting of the roots. Within three inches of the surface they would produce earlier and more succulent shoots, and with proper surface-treatment, not a less amount of cuttings in the course of a season.

Buist says asparagus is a native of Great Britain, where it is found on banks of sandy soil contiguous to the sea, growing luxuriantly under the salt breezes. Bridgeman says it is found growing wild in Russia and Poland, where it is eaten by the cattle the same as grass. In none of the authorities that we have consulted, do we find the fact recognized, that it is also a native of this country. We have so often found it growing along our shores, with all the characteristics of a wild plant, that we have no doubt that it is as much one of our own native marine plants, as the eel grass and the rock weed that grow in the adjacent waters. It is found abundantly upon the shores of Mason's Island, at the mouth of the Mystic river, Connecticut, where it is sometimes gathered by the inhabitants for greens. We have seen it growing on the shores of Quanituc, in the same neighborhood, and also on Shelter Island, New York, New Jersey, and elsewhere.

In order to properly prepare a piece of ground for the cultivaton of this plant, it is important to understand its native habits, and the food necessary for its health. When these are understood, we may apply any mode of stimulating its growth within our reach, and bring it to its desired perfection. Nature places it, we see, in its wild state, among sea-sand, mixed with the soft, spongy decay of marine plants, the most yielding of all earthy substances, never becoming dry, never remaining loaded with stagnant water, but at every tide receiving a supply of the saline particles that constitute an essential part of the food of the plant. Under such

circumstances, the roots meet with no obstruction to their full development.

An analysis of the ash of the plant, by Levy, shows the following constituents:

Potash - - -	20.48	Sulphuric acid - -	5.72
Soda - - -	2.89	Phosphoric acid .	10.03
Lime - - -	13.15	Carbonic acid - -	25.71
Magnesia - - -	3.24	Chlorine - - -	3.21
Peroxide of iron -	4.22	Loss - - - -	1.35
Silicia - - -	9.99		
	100.00		

The native habits of the plant, and its inorganic constituents should be our guide in preparing the ground for its cultivation. We have prepared two beds upon our present premises, the one upon upland, and the other upon reclaimed salt-marsh. That upon the upla nd is about a rod square and was prepared by removing the surface-soil to the depth of about two feet, pushing in stones, oyster-shells, and bones at the bottom, a heavy coating of manure over these, and then the surface-soil replaced. We give this, every winter, about a bushel of course refuse salt, and heavy dressing of manure, either from the pig-stye, or the privy. This has produced admirably, and we thought it the perfection of an Asparagus bed, until we made a second. The lower part of our garden, a strip some four hundred feet long by a rod in width, was originally a marsh with salt-water ditch for the boundary line. This we began to reclaim, some three years since, and appropriated about one-third to Asparagus. The marsh was removed to the depth of three and in some places four feet, and stones aud blasted rocks from the upland, rolled into the vacuum and then the marsh mud put on top of them; raising the surface of the land about two feet above its former height. After this had been heavily manured, we set out our plants in drills, about two feet apart, and eighteen inches in the drill, covering them with two or three inches of the soil. The new made land receives the wash of the adjacent hill-side, which furnishes it with all the sand it nee Though it is situated, where its roots have access to salt-water every side we give it a heavy coating of salt every winter, and manure the surface liberally from the pig-stye. We have once given it a dressing of oyster-shell lime, which the analysis shows to be an important constituent in its composition. To furnish the potash, we burnt a portion of the course sods, and peat from the marsh, and strewed the ashes upon the surface. The result has been surprising to all beholders. The light porous black soil feels the first genial sunshine of spring, and the plants start about a week earlier than those upon the adjacent upland.

OUR EXCHANGES.

At the close of the year we desire to say a few words about our exchanges. They are of course rather numerous, but to some we are under obligations for courteous notices and encouragement.

W. S. King, Esq. of Boston is editor of three of our exchanges, the Practical Farmer weekly, and the Journal of Agriculture and Gardeners' Magazine monthly, which are principally made up from the different articles on each branch in the weekly. All of these are conducted with ability and contain excellent contributions, the price of the Farmer is $2.00 and of the monthlies $1.00 per annum each.

The Working Farmer, published in New York, at $2.00 a year is a monthly, edited by Prof. Mapes. The well known ability of its editor is a guarantee that something instructive can always be found in its pages. He appears to be at loggerheads with a number of other agricultural editors, but he seems able to take care of himself. We are the more disposed to feel favorably towards the Working Farmer as it is the only paper in the State of New York which has noticed the Florist.

Our neighbors, the Pennsylvania Farm Journal and the Germantown Telegraph are too well known and appreciated to require any commendation from us. The former published at Westchester at $1.00 a year has reached a large circulation and it is steadily and rapidly increasing. It is singular, that it and the Florist are the only magazines exclusively devoted to Agriculture and Horticulture in this state. But then the quality makes up the deficiency. The *Soil of the South* publishsd at Columbus, Ga. is an excellent monthly. The Horticultural part is conducted by Mr. Peabody, who has become well known by his successful Strawberry culture. The Alabama Planter is the weekly edition of the Mobile Tribune, and is furnished with excellent essays by the writers of its neighborhood.

Of our Western friends we have several times spoken. The Prairie Farmer of Chicago, the Iowa Farmer of Burlington. Iowa, and the Ohio Farmer of Cleveland, O. are welcome visitors to our table. Of the *Western Horticultural Review* we have received nothing since the eighth number, the cause we do not know.

A FEW WORDS TO OUR READERS.

We have now completed another volume of the Florist, not without dissatisfaction arising from delay in its issue. This our subscribers, or the majority of them must blame themselves for, as they neglected to pay their

subscriptions and thus, by not fulfilling their part of the contract, causing our part to fall behind. However, we hope, from the arrangements we have made to be very punctual in future so that those who do pay will have no cause for complaint.

Our Magazine with this exception has given universal satisfaction; we hear in every direction, commendations, of its appearance and of the matter contained in it. And there is no magazine, certainly no horticultural magazine, published in this country, which gives so much at so low a price.

Our Plates are unsurpassed. There is not a work of the kind published in London, whose plates are more beautifully executed,certain ly not in this country. There are in the volume just furnished, counting each double plate as two, for they cost exactly double, thirteen plates, all colored, and of most beautiful subjects.

The paper on which the Florist is printed, is much superior to that used generally for magazines: it is made for us at one of the best mills in the country. The printing and presswork are not excelled by any, either in execution or correctness.

The contributions to the Florist are of the very first class, both practical and scientific: the papers which appear, are from well known pens and can always be relied on as the best guides to the subjects treated of. We expect next year additional assistance from our friends, and we invite all who have anything to communicate, to favor us. We hope that all our friends and subscribers will lend us a helping hand in increasing our list, so that in another year we may be on an equality in the number of subscribers with any other horticultural magazine. With a very little exertion on the part of subscribers, we can attain a very large circulation. We would especially request our present subscribers to send in their subscriptions as promptly as possible, as delay on their part of a little matter, makes it a great disadvantage to us.

NUMBER SEVEN.

We have had several applications for No. 7 of this Volume; if those who think they have not received it, will look into the cover of No. 6 they will find two numbers, the second of which is the one they want. No. 6 has a double plate, as had No. 4 and No. 9. We shall have no double numbers next year, as we shall have no "catching up" to do.

End of Volume